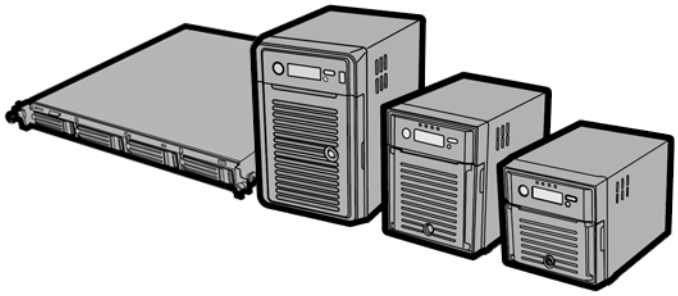
BUFFALO™

TeraStation WSS 5000

User Manual

TeraStation™ WSS 5000

WS5400R WS5600D WS5400D WS5200D



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35020065-02

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Chapter 1 Installation

Installation

If using OS X 10.4 or later, download and install "Remote Desktop Connection Client for Mac 2" from www.microsoft.com. For OS X 10.3.9, use version 1.0.3 instead.

1 Connect the supplied USB device to your computer. Open the USB device and double-click *TSNavi.exe* . TeraNavigator will launch.

Notes:

- If using Windows 2000 or 2000 Server, make sure that write-protection on the USB device is disabled before connecting it. To disable write-protection, slide the switch on the USB device toward the USB connector.
- If "Do you want to allow the following program to make changes to this computer ?" is displayed by Windows 8 or Windows 7, click *Yes*. If "A program needs your permission to continue" is displayed by Windows Vista, click *Continue*.
- With Mac OS, double-click the disk image "WS5000_SERIES-xxx.dmg" (where xxx is a three-digit number) from the USB device to mount, and then double-click *TeraNavigator* in the image.
- Disable your antivirus software firewall before continuing. You may not be able to install the software if antivirus software or a software firewall are enabled. After you've finished setup, re-enable your firewall and antivirus software.

2 Click *Begin Installation*.

3 Follow the steps on the screen to connect the Ethernet cable and power cable to the TeraStation and turn it on.

Notes:

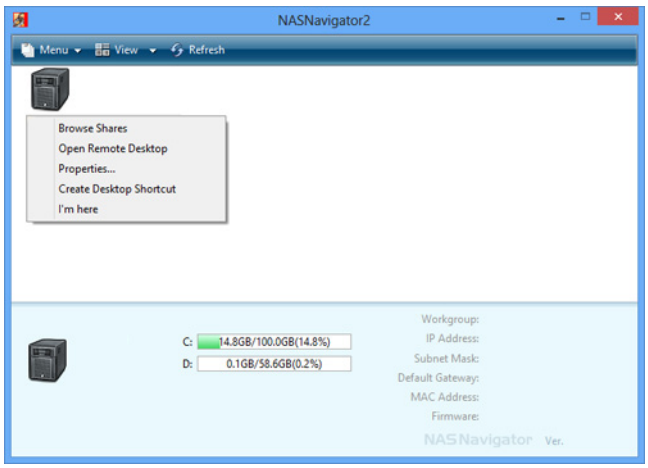
- Use LAN port 1 for initial setup. After setup, you may connect a second cable to LAN port 2.
- Before removing the sticker on the power connector, be sure to read the terms and conditions of the Microsoft Software License contained in the "ms-license" folder in the USB device.

4 Follow the steps on the screen to install NAS Navigator2.

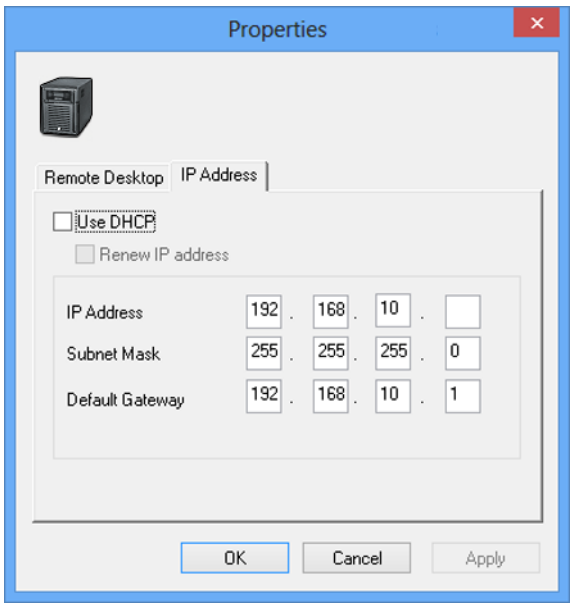
5 Click *Finish*.

NAS Navigator2 will open . You can also open it by clicking icon on the Windows desktop or icon in the Dock on Mac OS.

6 In NAS Navigator2, right-click on your TeraStation's icon, then select *Properties*. On the Mac, click the TeraStation's icon while holding down the control key, then select *Configure*.



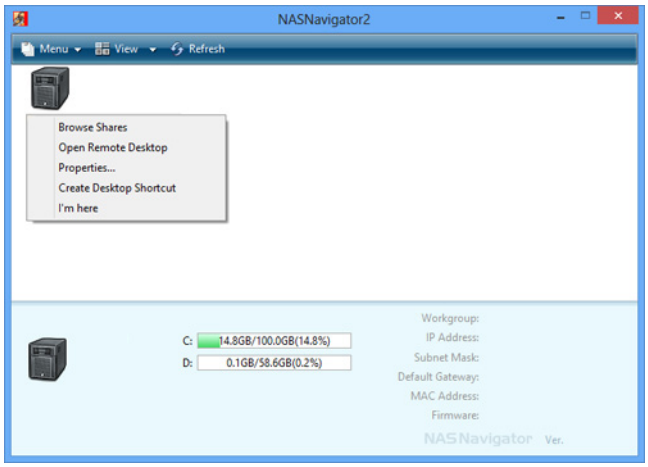
7 Click the *IP Address* tab, enter the desired settings, and click *OK*.



Notes:

- If you don't know how to configure these settings, check "Use DHCP".
- If you are prompted to enter the administrator's password, enter the TeraStation's password (it is set to "password" by factory default).

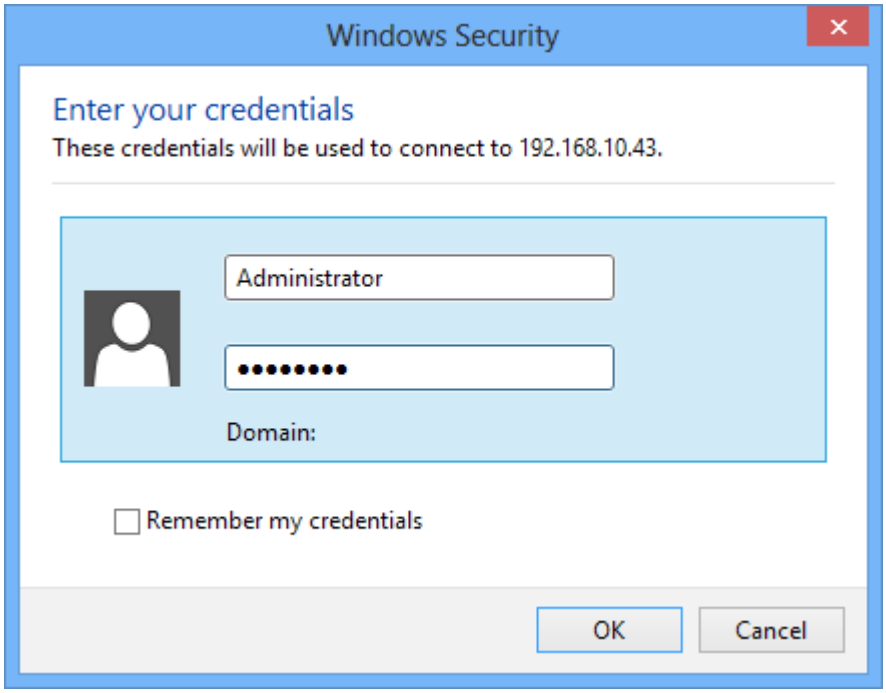
8 Right-click on your TeraStation's icon and click *Open Remote Desktop*. On a Mac, click the TeraStation's icon while holding down the control key, then select *Open Remote Desktop*.



Notes:

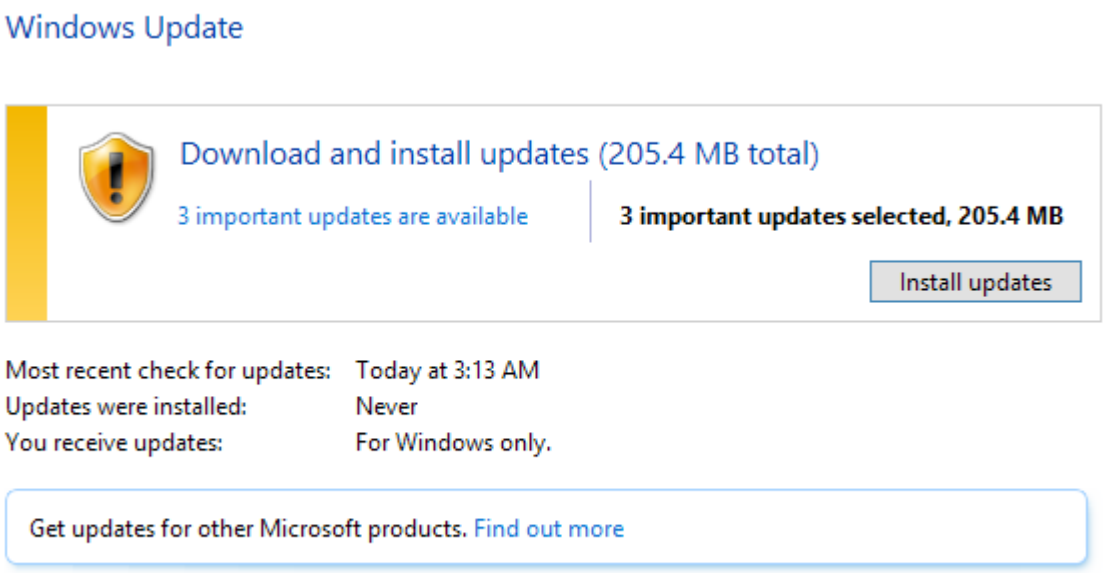
- If the message "The publisher of this remote connection cannot be identified. Do you want to connect anyway?" is displayed, click *Connect*.
- If "The identity of the remote computer cannot be verified. Do you want to connect anyway?" is displayed, click *Yes* or *Continue*.

9 Enter the username and password, then click *OK*.
Windows Storage Server will open in the remote desktop.

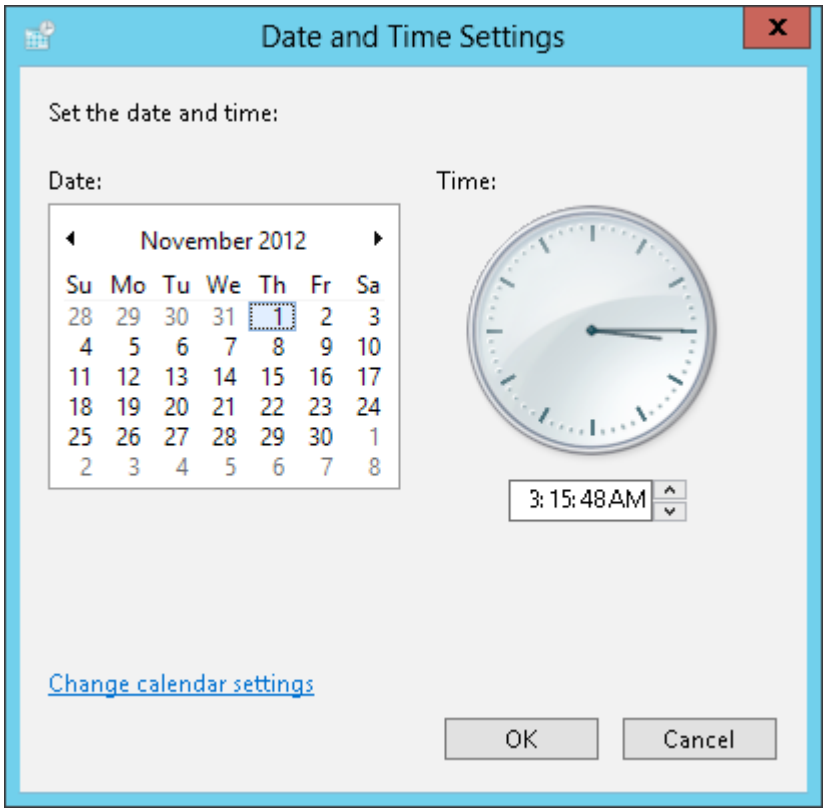


Note: The default username and password are "Administrator" and "password".

10 Go to Server Manager and click *Local Server* to install the Windows Storage Server update program.
Under "PROPERTIES", click the status shown in "Windows Update". Click *Check for updates*, then *Install updates*.


Windows Update
Download and install updates (205.4 MB total)
3 important updates are available
3 important updates selected, 205.4 MB
Install updates
Most recent check for updates: Today at 3:13 AM
Updates were installed: Never
You receive updates: For Windows only.
Get updates for other Microsoft products. Find out more

11 In Server Manager, click *Local Server* to set the date and time.
Under "PROPERTIES", click the item shown in "Time zone". In the "Date and Time" tab, click *Change date and time*.
Select the current date and time, then click *OK*.


Date and Time Settings
Set the date and time:
Date:
Time:
November 2012
Su Mo Tu We Th Fr Sa
28 29 30 31 1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 1
2 3 4 5 6 7 8
3:15:48 AM
Change calendar settings
OK
Cancel

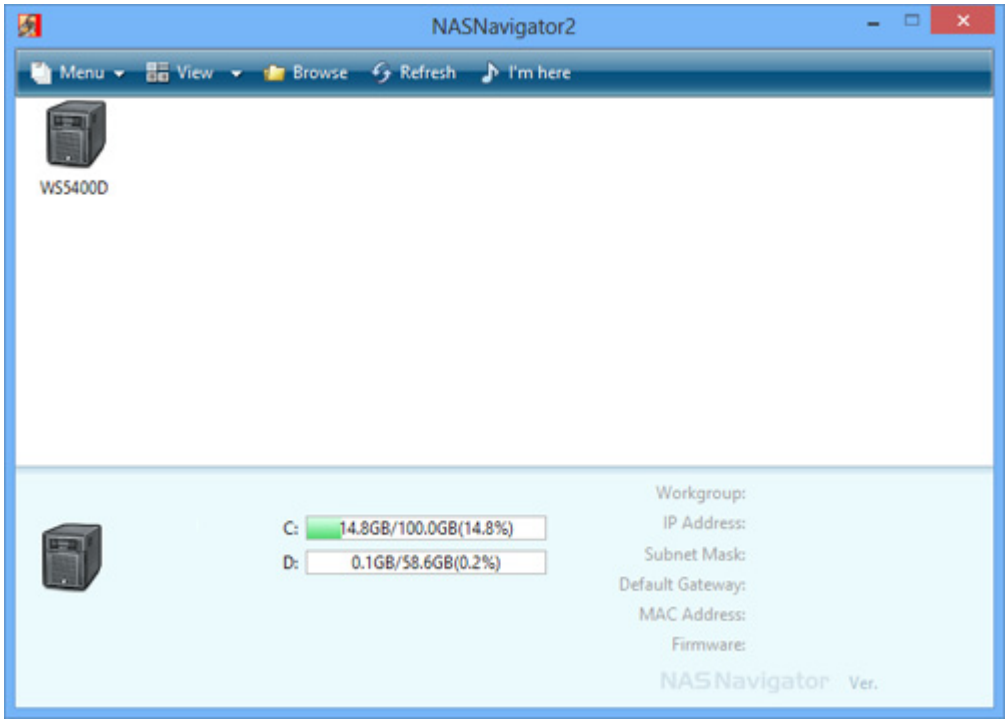
Note: In the *Internet Time* tab, click *Change settings*, then select *Synchronize with an Internet time server*. The date and time can be obtained automatically.

12 Create a shared folder.

See "Creating a Shared Folder" section in chapter 6 for details.

13 Change the TeraStation's password.
See the "Changing the Password" section in chapter 6 for details.

14 In NAS Navigator2, double-click your TeraStation's icon. For Mac OS, the TeraStation is mounted as a drive icon on the desktop, or it is displayed in the sidebar of the Finder.



Note: Never disable the LAN (network device) settings in Windows Storage Server. Disabling the LAN settings will also disable access to the TeraStation.

Turning the TeraStation On and Off

Press the power button on the TeraStation to turn it on.

Because the TeraStation can be damaged if it is unplugged suddenly without powering it down properly, shut it down using the following procedure.

1 In Windows Storage Server, point the cursor to the upper-right hand corner of the screen, then click the icon.

2 Click the icon - *Shut down*.

3 Select the reason why you want to shut down, then click *Continue*.

When all the LEDs on the front of the TeraStation turn off, the shutdown process is complete.

Installing Antivirus Software

Installing antivirus software on the TeraStation is strongly recommended.

Connect a USB CD/DVD drive to the TeraStation's USB port, load the antivirus software CD into the CD/DVD drive, and install the software.

Chapter 2 Opening Windows Storage Server

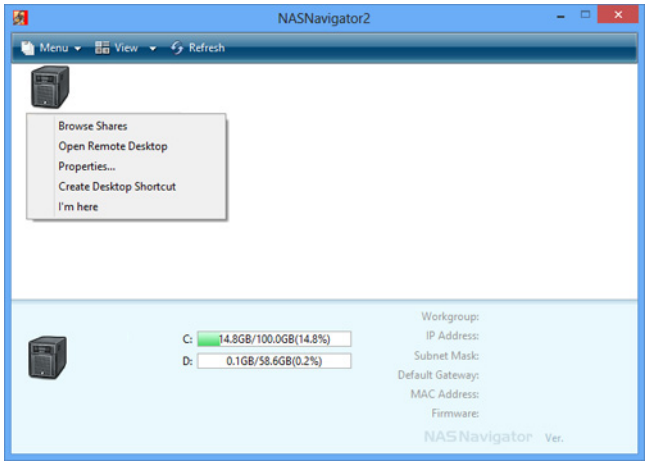
Opening Windows Storage Server

If using OS X 10.4 or later, download and install "Remote Desktop Connection Client for Mac 2" from www.microsoft.com. If using OS X 10.3.9, use version 1.0.3 instead.

1 Double-click the icon on the desktop.
NAS Navigator2 will start.

For Mac OS, click the icon in the Dock.

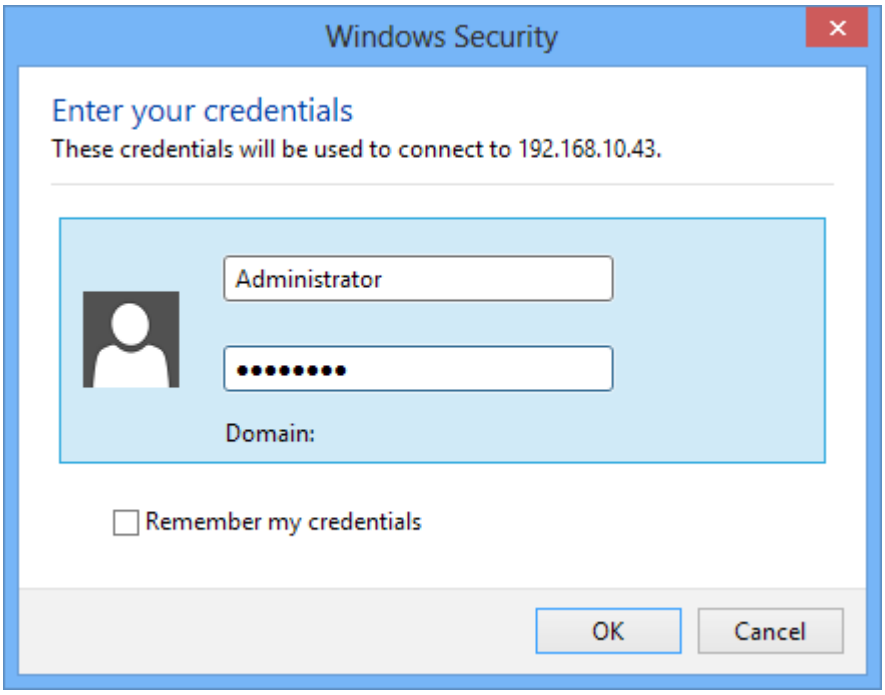
2 Right-click on your TeraStation's icon, then click *Open Remote Desktop*. For Mac OS, click the TeraStation's icon while holding down the control key, then click *Open Remote Desktop*.



Notes:

- If two or more LinkStations or TeraStations are connected on the same network, multiple icons will be displayed. Select the TeraStation that you want to open.
- Click the TeraStation icon to view the IP address and other specific information for the TeraStation.
- If the message "The identity of the remote computer cannot be verified. Do you want to connect anyway?" is displayed, click *Yes* or *Continue*.

3 Enter the username and password, then click *OK*.
Windows Storage Server will open in the remote desktop.



The default username and password are "Administrator" and "password".

Note: Make sure that the same language is configured in "Display language", "Welcome screen and system accounts", and system locale. Configuring different languages for these settings may cause unexpected behavior.

Chapter 3 Windows Update

Windows Update

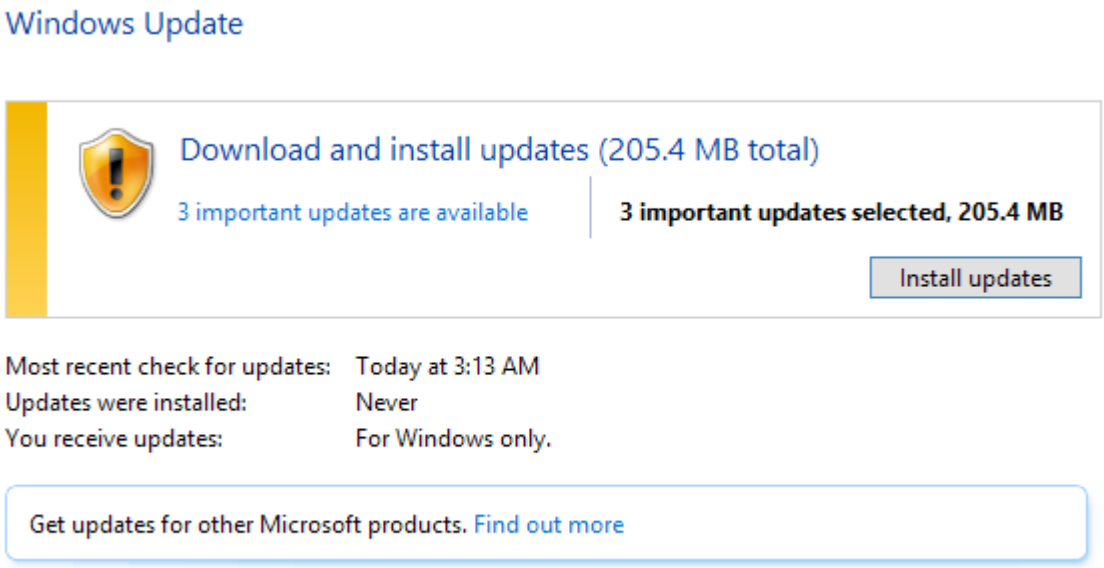
For best results, Windows Storage Server should be updated regularly. Use Windows Update as described below.

Note: The TeraStation must be connected to the Internet.

1 In Windows Storage Server, click *Control Panel* - *System and Security* - *Windows Update*.

2 Click *Check for updates*.

3 Click *Install updates*.

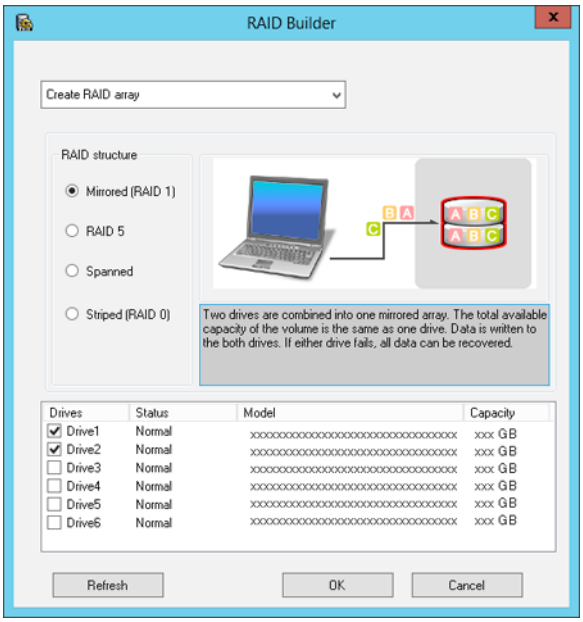

Windows Update
Download and install updates (205.4 MB total)
3 important updates are available
3 important updates selected, 205.4 MB
Install updates
Most recent check for updates: Today at 3:13 AM
Updates were installed: Never
You receive updates: For Windows only.
Get updates for other Microsoft products. Find out more

Follow the instructions on the screen.

Chapter 4 Software

RAID Builder

RAID Builder is used to modify the RAID arrays. See chapter 5 for details.


RAID Builder
Create RAID array
RAID structure
Mirrored (RAID 1)
RAID 5
Spanned
Striped (RAID 0)
Two drives are combined into one mirrored array. The total available capacity of the volume is the same as one drive. Data is written to the both drives. If either drive fails, all data can be recovered.
Drives
Status
Model
Capacity
Drive1 Normal xxx GB
Drive2 Normal xxx GB
Drive3 Normal xxx GB
Drive4 Normal xxx GB
Drive5 Normal xxx GB
Drive6 Normal xxx GB
Refresh
OK
Cancel

Note: To launch RAID Builder, you must be logged in as the Administrator in Windows Storage Server.

Chapter 5 Managing Your Storage

Creating Volumes

Volume Types

The features of each volume type are explained below.

Notes:

- RAID Builder will be used to create a volume, not the Disk Management options in Windows Storage Server.
- **When volumes are deleted or formatted, or the RAID mode is changed, all data stored in that volume is erased. Before executing these operations, back up any important data.**
- In this manual, "recover" means reverting the TeraStation (including the data) to state prior to the drive failure. It doesn't refer to reading data from a failed hard drive.
- RAID synchronization will start after changing the volumes. File transfer speed will be slower during it, which will take about 5 hours per terabyte.
- After a volume is created, unused extra space can't be added to the volume.
- Some space on each drive is not accessible because it is used by the system. The amount used on each drive is below.
  Drive 1: 50 MB
  Drive 2: 50 MB
  Drive 3: 100 GB + 150 MB
  Drive 4: 100 GB + 150 MB

RAID 5 Volumes*

The unallocated areas of three or more hard drives are used as a single array.

If one drive in a RAID 5 array fails, data on the array can be recovered after the failed drive is replaced. However, if two or more drives fail, all data is lost.

*Available for WS5600D, WS5400D, and WS5400R series TeraStations.

Mirrored Volumes (RAID 1)

The unallocated areas of two drives are combined into a single RAID 1 array.

Because the same data is written to both drives simultaneously, if one drive fails, data can be recovered from the other drive. If both drives in the array fail, data cannot be recovered.

Striped Volumes (RAID 0)

The unallocated areas of two or more drives are combined into a single RAID 0 array. However, data cannot be recovered if a single drive fails.

Spanned Volumes

The unallocated areas of multiple hard drives are joined to create a single logical volume. This allows various drive spaces to be combined efficiently. However, data cannot be recovered if even a single drive fails.

Simple Volumes (JBOD)

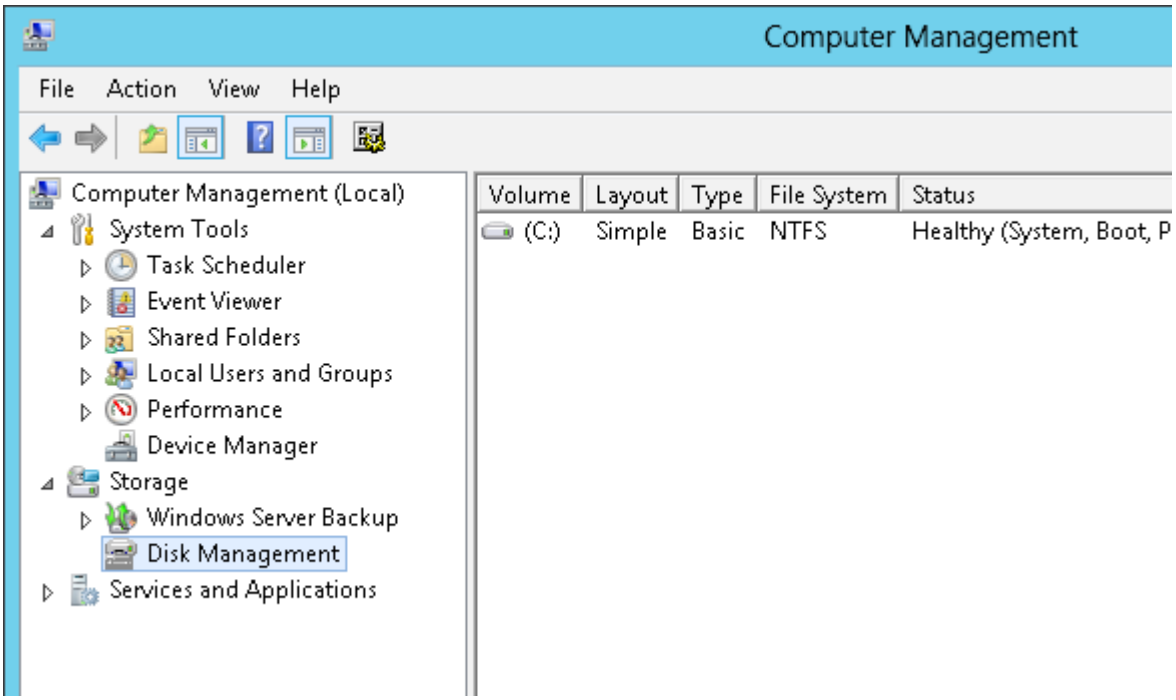
The internal hard drives of the TeraStation are each used as individual drives. If a hard drive fails, the data on the failed hard drive cannot be recovered.

Deleting Volumes

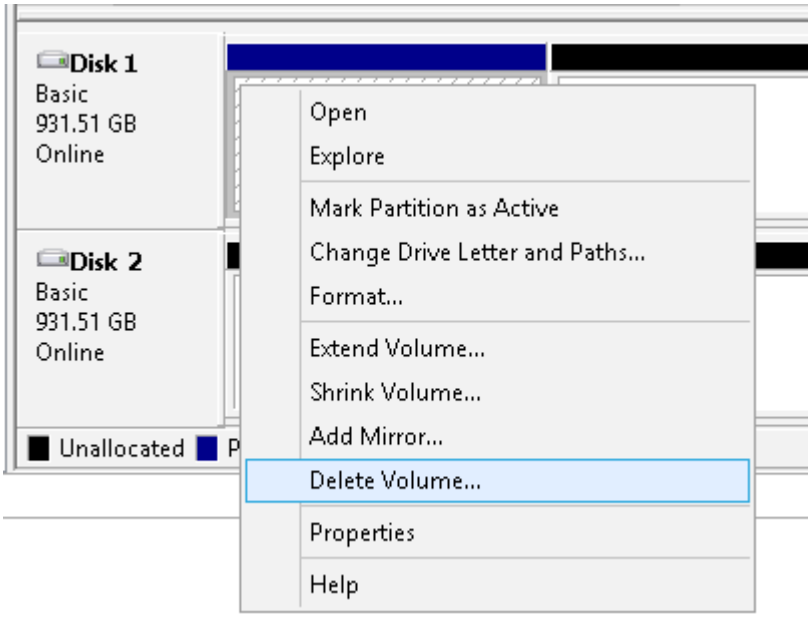
An unallocated area on a drive is required to create a volume. If there are no unallocated areas, create one by deleting an existing volume.

1 In Windows Storage Server, open *Administrative Tools*, then double-click *Computer Management*.

2 Click *Disk Management*.



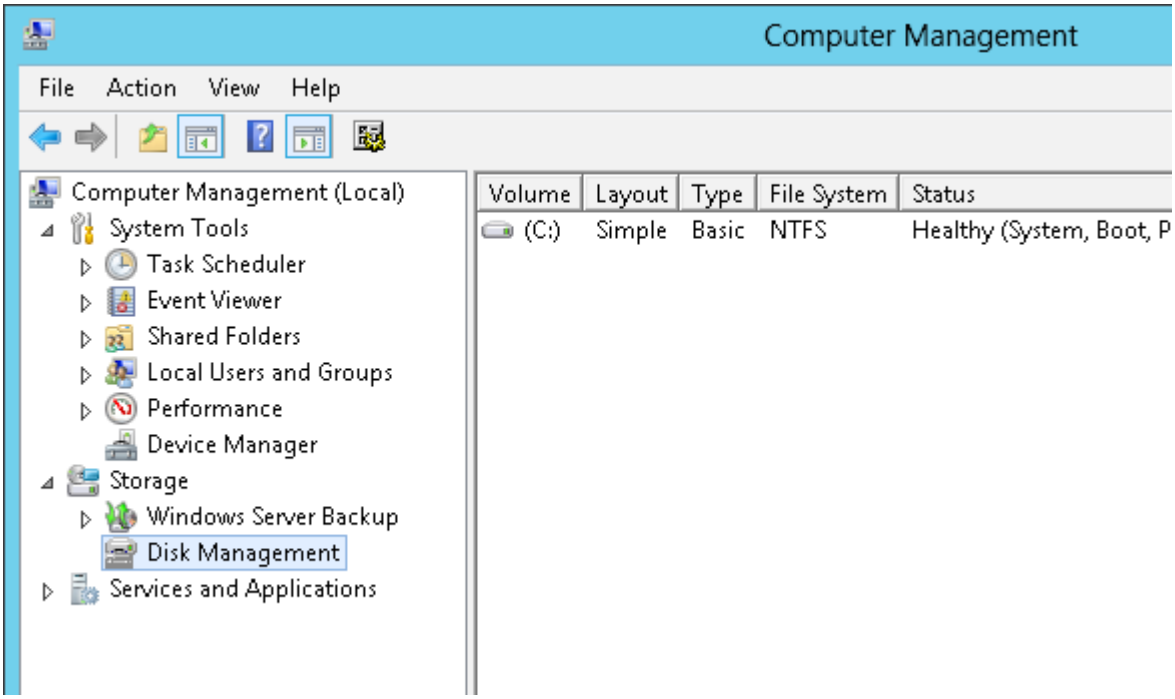
3 Right-click the volume that you want to delete and then select *Delete Volume*.



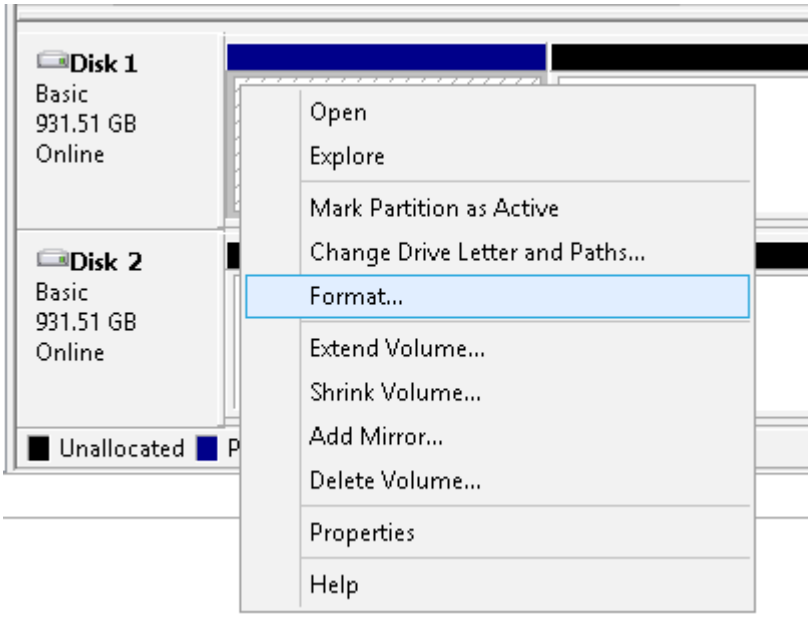
Formatting Volumes

1 In Windows Storage Server, open *Administrative Tools*, then double-click *Computer Management*.

2 Click *Disk Management*.



3 Right-click the volume that you want to format and then select *Format*.



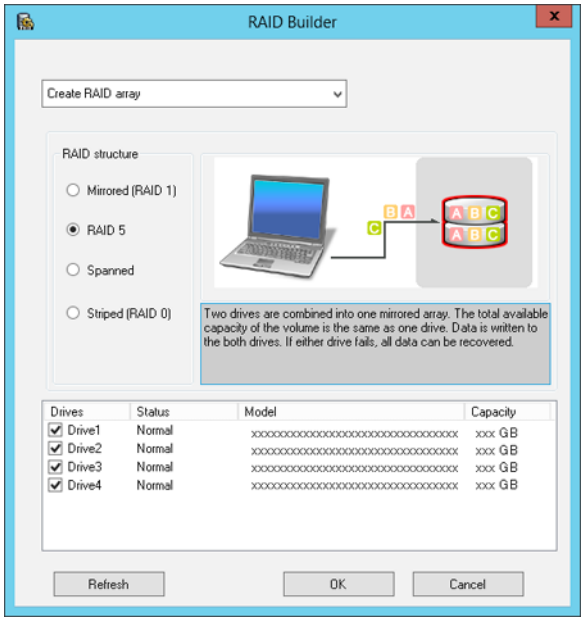
Creating a RAID 5 Volume

1 In Windows Storage Server, click *Launch RAID Builder*.

2 Select "Create RAID array" from the drop-down menu and "RAID 5" under "RAID structure".

3 Select at least three drives to create a RAID 5 array.

4 Click *OK*.


RAID Builder
Create RAID array
RAID structure
Mirrored (RAID 1)
RAID 5
Spanned
Striped (RAID 0)
Two drives are combined into one mirrored array. The total available capacity of the volume is the same as one drive. Data is written to the both drives. If either drive fails, all data can be recovered.
Drives
Status
Model
Capacity
Drive1 Normal xxx GB
Drive2 Normal xxx GB
Drive3 Normal xxx GB
Drive4 Normal xxx GB
Refresh
OK
Cancel

Examples:

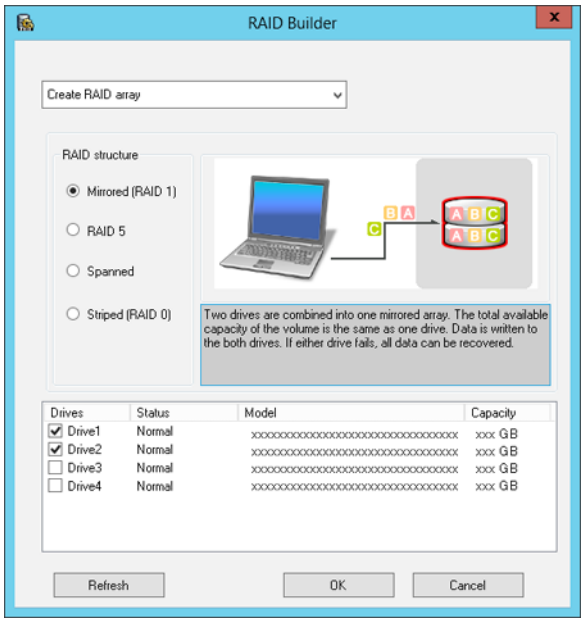
- For a configuration with drive 1 (50 GB), drive 2 (80 GB), drive 3 (58 GB), and drive 4 (100 GB), the usable space on the RAID volume will be (50 GB x 4 drives) ÷ 3/4 = 150 GB.

- For "n (1 to 4)" identical hard drives in a RAID 5 array, the available space is (n-1)/n times the total drive space.

A RAID 5 volume will be created. Next, create a shared folder on the volume as described in chapter 6.

Creating a Mirrored Volume (RAID 1)

1. In Windows Storage Server, click *Launch RAID Builder*.
2. Select "Create RAID array" from the drop-down menu and "Mirrored (RAID 1)" under "RAID structure".
3. Select at least two drives to create a RAID 1 array.
4. Click *OK*.

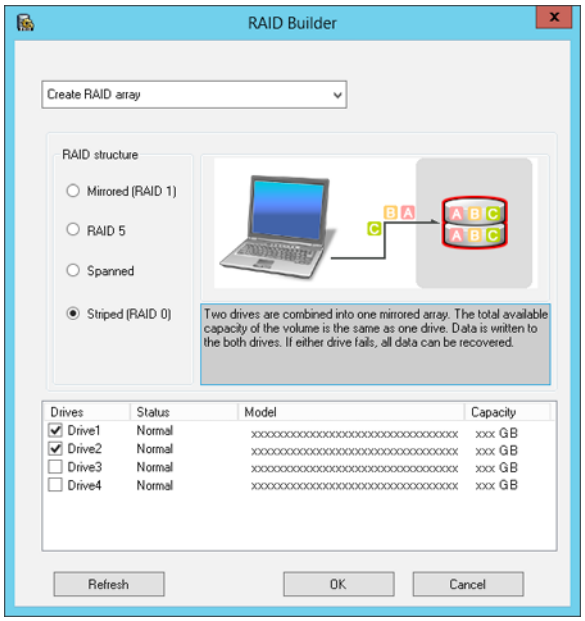

RAID Builder
Create RAID array
RAID structure
Mirrored (RAID 1)
RAID 5
Spanned
Striped (RAID 0)
Two drives are combined into one mirrored array. The total available capacity of the volume is the same as one drive. Data is written to the both drives. If either drive fails, all data can be recovered.
Drives
Status
Model
Capacity
Drive1 Normal xxx GB
Drive2 Normal xxx GB
Drive3 Normal xxx GB
Drive4 Normal xxx GB
Refresh
OK
Cancel

Example:
For a configuration with drive 3 (58 GB) and drive 4 (100 GB), the usable space on the mirrored volume will be 58 GB.

A mirrored volume will be created. Next, create a shared folder on the volume as described in chapter 6.

Creating a Striped Volume (RAID 0)

1. In Windows Storage Server, click *Launch RAID Builder*.
2. Select "Create RAID array" from the drop-down menu and "Striped (RAID 0)" under "RAID structure".
3. Select at least two drives to create RAID 0 array.
4. Click *OK*.

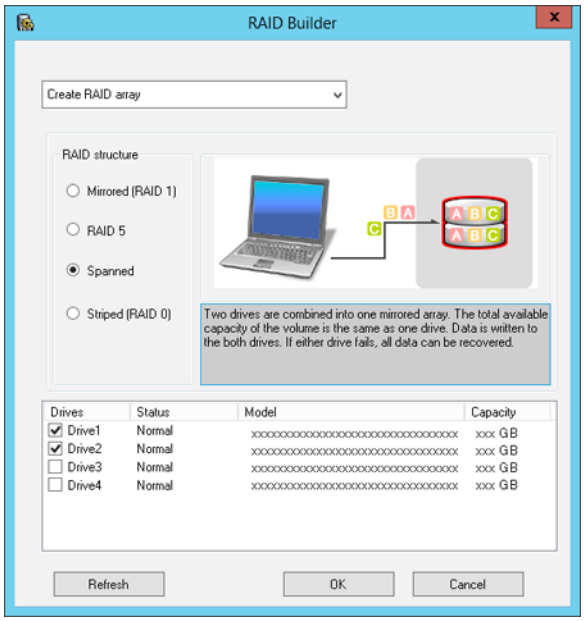

RAID Builder
Create RAID array
RAID structure
Mirrored (RAID 1)
RAID 5
Spanned
Striped (RAID 0)
Two drives are combined into one mirrored array. The total available capacity of the volume is the same as one drive. Data is written to the both drives. If either drive fails, all data can be recovered.
Drives
Status
Model
Capacity
Drive1 Normal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxx GB
Drive2 Normal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxx GB
Drive3 Normal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxx GB
Drive4 Normal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxx GB
Refresh
OK
Cancel

Example:
For a configuration with drive 1 (50 GB), drive 2 (80 GB), drive 3 (58 GB), and drive 4 (100 GB), the usable space on the mirrored volume will be 50 GB x 4 drives = 200 GB.

A striped volume will be created. Next, create a shared folder on the volume as described in chapter 6.

Creating a Spanned Volume

1. In Windows Storage Server, click *Launch RAID Builder*.
2. Select "Create RAID array" from the drop-down menu and "Spanned" under "RAID structure".
3. Select at least two drives to create spanned array.
4. Click *OK*.


RAID Builder
Create RAID array
RAID structure
Mirrored (RAID 1)
RAID 5
Spanned
Striped (RAID 0)
Two drives are combined into one mirrored array. The total available capacity of the volume is the same as one drive. Data is written to the both drives. If either drive fails, all data can be recovered.
Drives
Status
Model
Capacity
Drive1 Normal xxx GB
Drive2 Normal xxx GB
Drive3 Normal xxx GB
Drive4 Normal xxx GB
Refresh
OK
Cancel

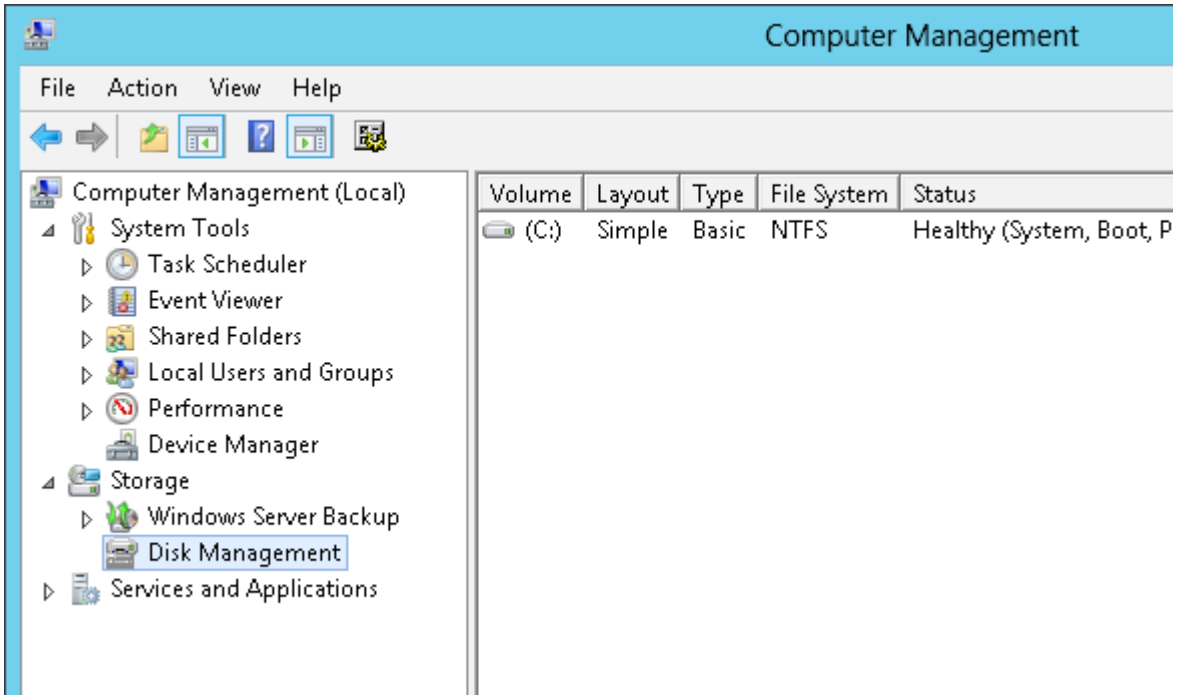
Example:
For a configuration with drive 1 (50 GB), drive 2 (80 GB), drive 3 (58 GB), and drive 4 (100 GB), the usable space on the RAID volume will be 50 GB + 80 GB + 58 GB + 100 GB = 288 GB.

A spanned volume will be created. Next, create a shared folder on the volume as described in chapter 6.

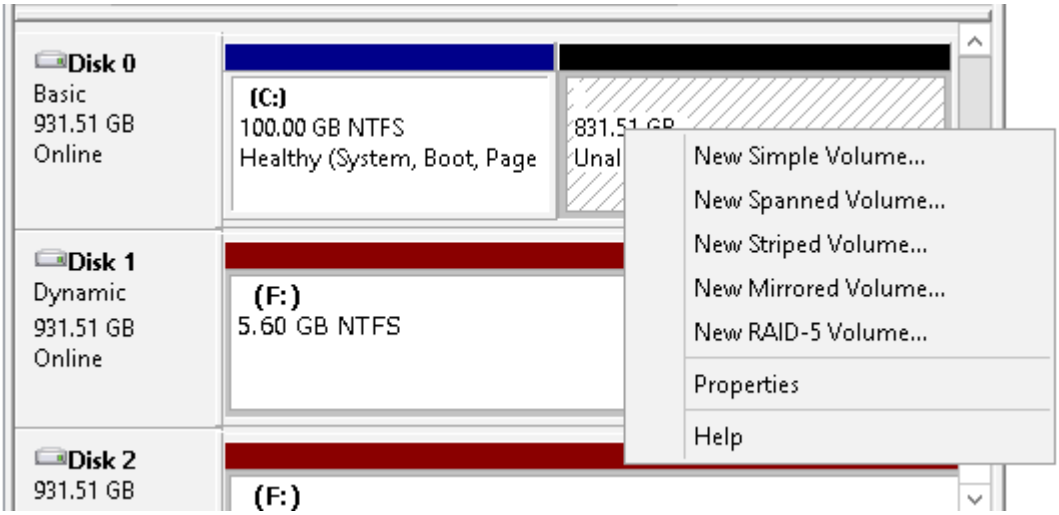
Creating Simple Volumes (JBOD)

1 In Windows Storage Server, open *Administrative Tools*, then double-click *Computer Management*.

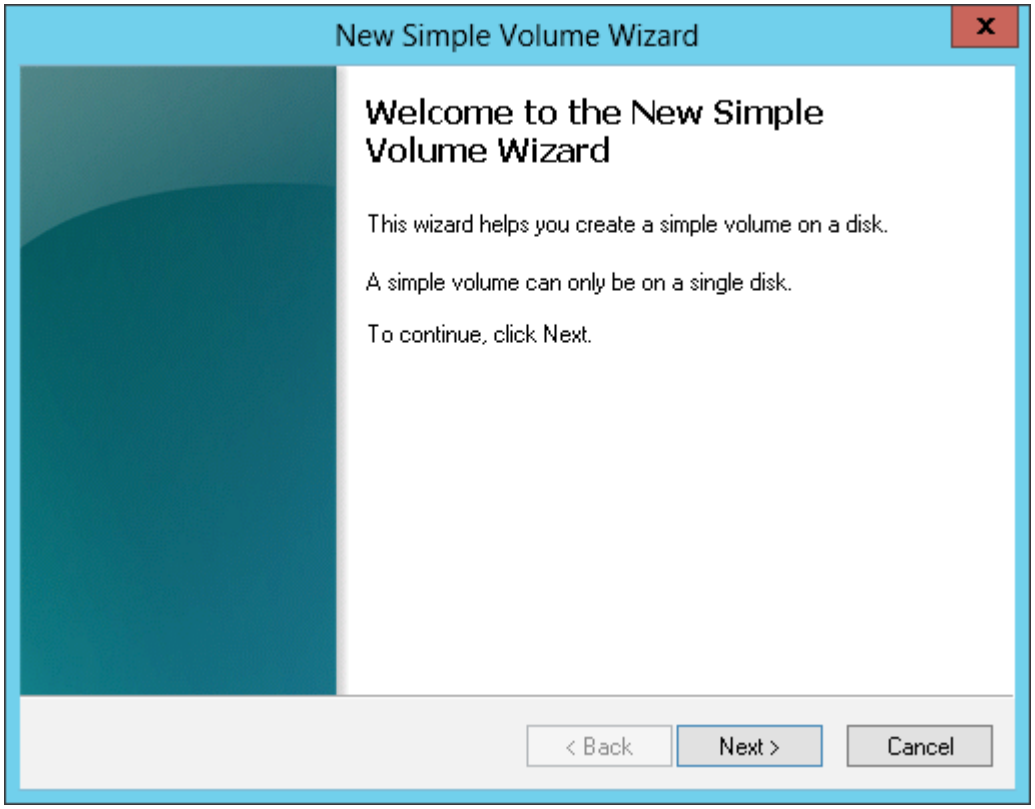
2 Click *Disk Management*.



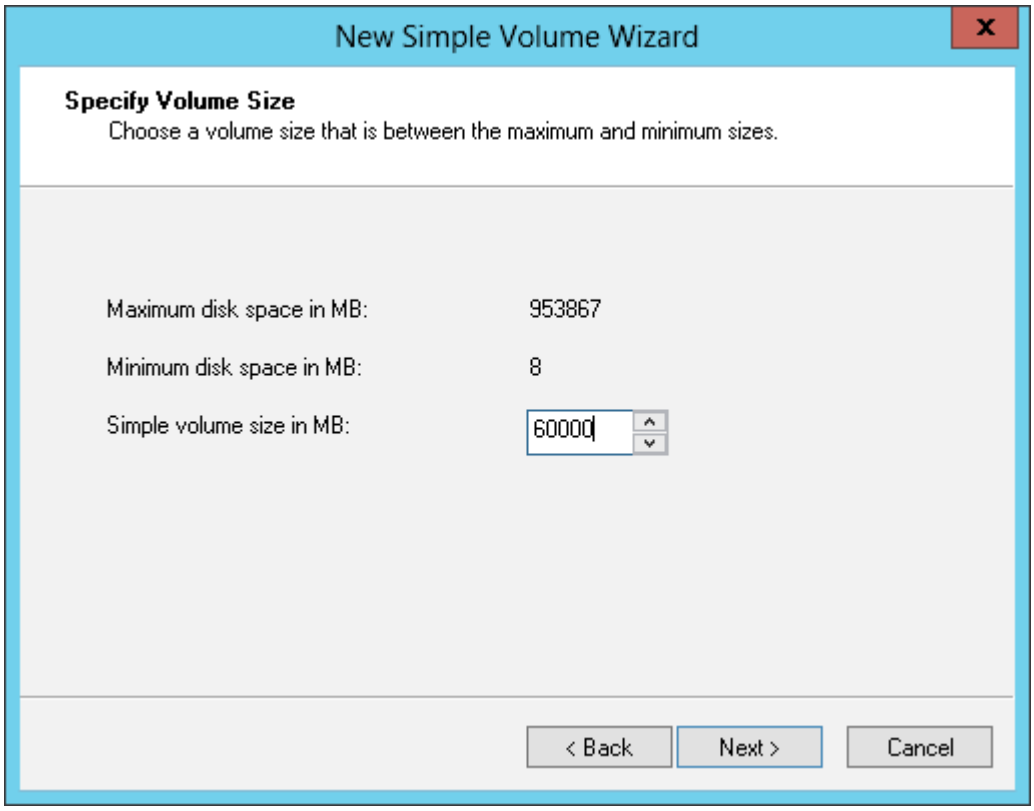
3 Right-click the unallocated area, then select *New Simple Volume*.



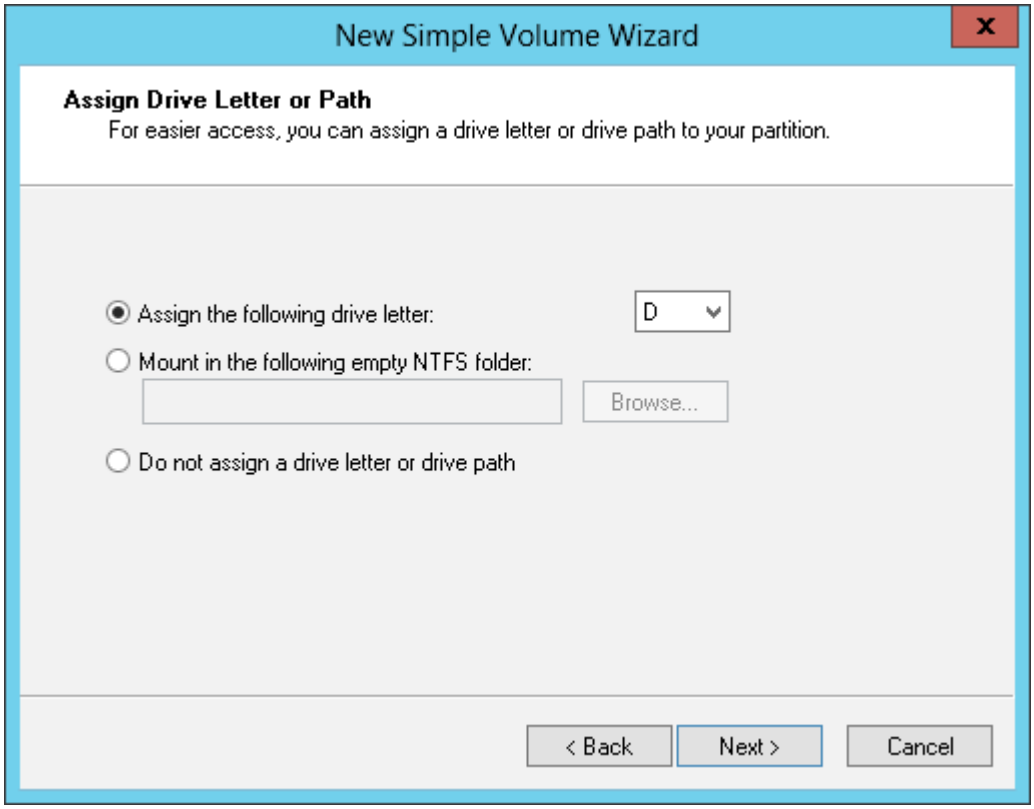
4 Click *Next*.


New Simple Volume Wizard
Welcome to the New Simple Volume Wizard
This wizard helps you create a simple volume on a disk.
A simple volume can only be on a single disk.
To continue, click Next.
< Back
Next >
Cancel

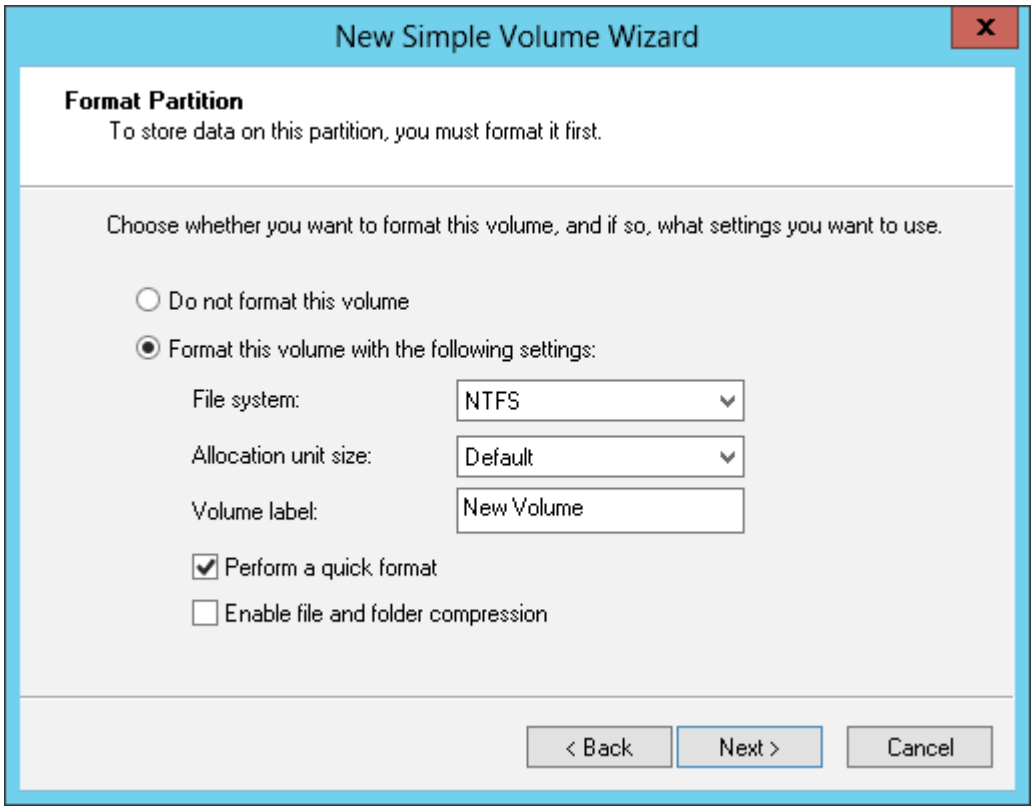
5 Enter the volume size that you want to create, then click *Next*.



6 Select *Assign the following drive letter*, then click *Next*.


New Simple Volume Wizard
Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your partition.
Assign the following drive letter:
D
Mount in the following empty NTFS folder:
Browse...
Do not assign a drive letter or drive path
< Back
Next >
Cancel

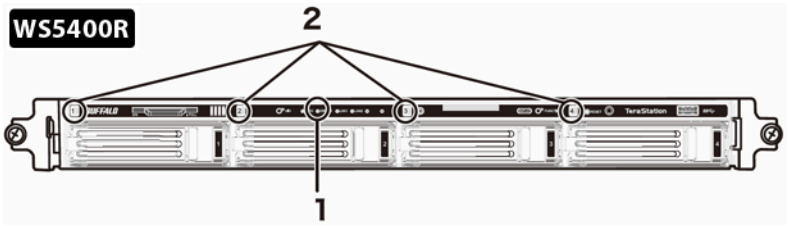
7 Select *Format this volume with the following settings* and *Perform a quick format*, then click *Next*.


New Simple Volume Wizard
Format Partition
To store data on this partition, you must format it first.
Choose whether you want to format this volume, and if so, what settings you want to use.
Do not format this volume
Format this volume with the following settings:
File system:
NTFS
Allocation unit size:
Default
Volume label:
New Volume
Perform a quick format
Enable file and folder compression
< Back
Next >
Cancel

A simple volume will be created. Next, create a shared folder on the volume as described in chapter 6.

Hard Drive Replacement Procedure

Hard drives in the TeraStation show a green status LED during normal operation. When a drive fails, its error LED will glow red.



1. Error LED

Glows red if a drive has failed.

2. Status LEDs

Green:

Normal operation.

Flashing red:

If you need to remove a drive whose status LED is flashing red, either shut down the TeraStation, or dismount the drive in RAID Builder. Once the TeraStation is shut down, or the drive is dismounted, then it is safe to replace the drive.

Glowing red:

If a drive's status LED is glowing red, the drive has malfunctioned and may be hot-swapped.

Notes:

- Do not unplug a drive whose status LED is not lit red. If you remove the drive without properly dismounting it, data may be lost or the TeraStation may malfunction.
- When changing drives, the replacement drive should be a Buffalo OP-HDS series drive of the same size.
- The TeraStation is fragile. Handle it with care. Do not drop or bump the TeraStation.
- Use caution when handling the unit in order to avoid personal injury.
- Never disassemble any parts while you are replacing a hard drive unless instructed to do so in this manual. Any malfunction or damage caused by disassembling the TeraStation will void your warranty.
- To avoid damaging the TeraStation with static electricity, ground yourself by touching something made of metal before handling any sensitive electronic parts.
- Do not change the order of the hard drives in the TeraStation. For example, pulling out drive 1 and replacing it with drive 2 may cause data to be corrupted or lost.
- In a RAID 1 configuration, the boot drive (C:) consists of the first and second hard drives from the top. Do not replace both of these hard drives at the same time.
- If a hard drive is replaced while saving a file, the file can be corrupted. Be sure that the saving operation is completed before replacing the hard drive.

Hard Drive Replacement Examples

Note: If you used Disk Management to mirror the boot drive, the TeraStation will not boot when the drive fails.

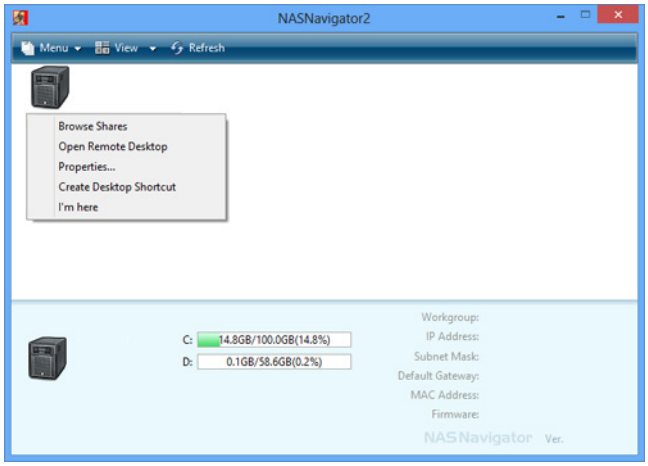
Follow the procedure below.

Hard Drive Replacement in Case of Disk Failure Other Than Drive 1 or Drive 2

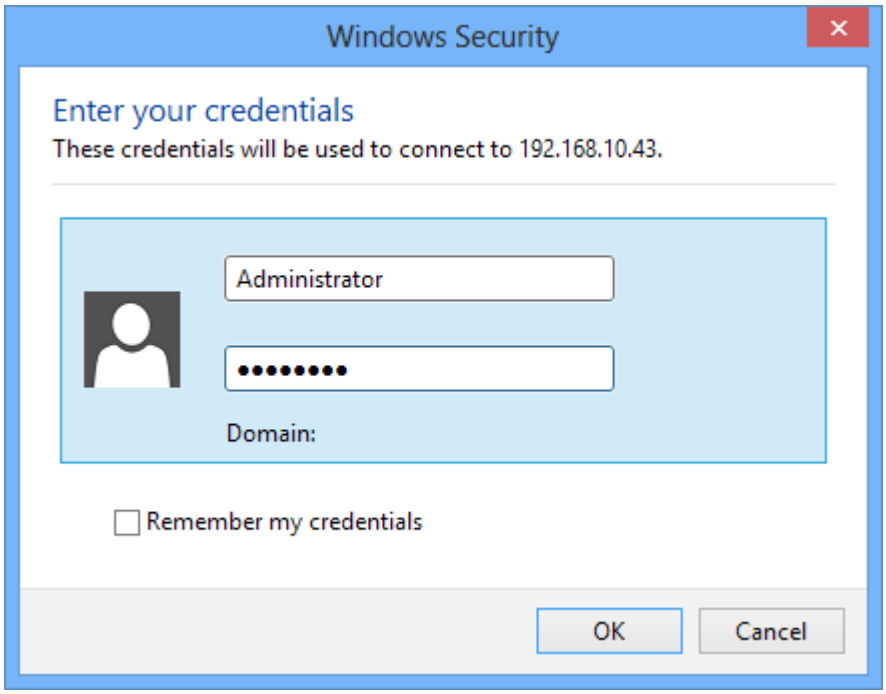
1 Double-click the icon on the desktop to start NAS Navigator2.

For Mac OS, click the icon in the Dock.

2 Right-click on your TeraStation's icon, then click *Open Remote Desktop*. For Mac OS, click the TeraStation's icon while holding down the control key, then click *Open Remote Desktop*.



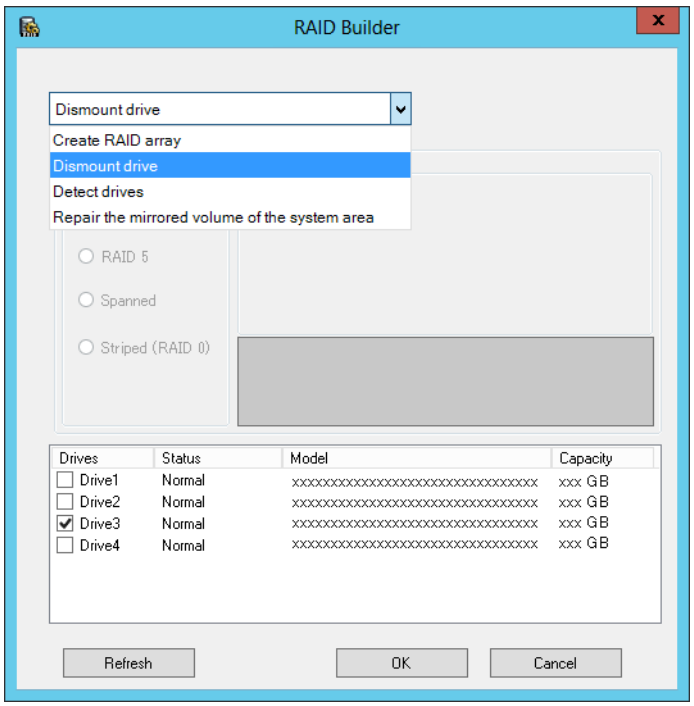
3 Enter the username and password, then click *OK*.
Windows Storage Server will open in the remote desktop.



Note: The default username and password are "Administrator" and "password".

4 In Windows Storage Server, click *Launch RAID Builder*.

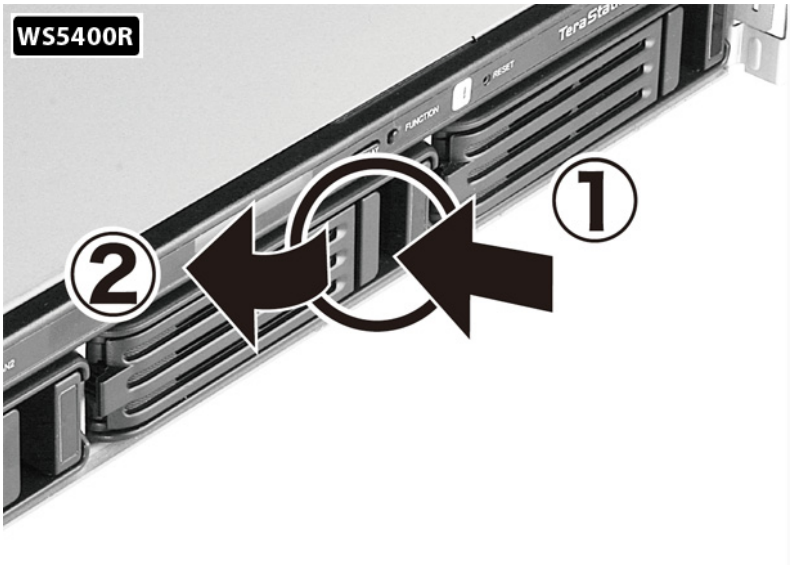
5 Select *Dismount drive*, select the hard drive to be removed, and click *OK*.



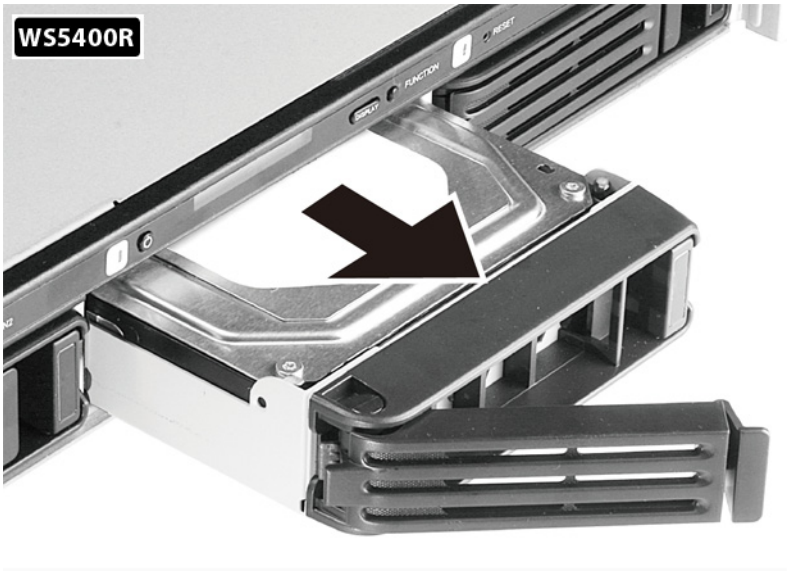
6 When the message "The drive is ready to remove." is displayed, click *OK*.
The status LED will stop flashing and glow steadily.

7 WS5600D, WS5400D, WS5200D: Open the front cover with the included key.

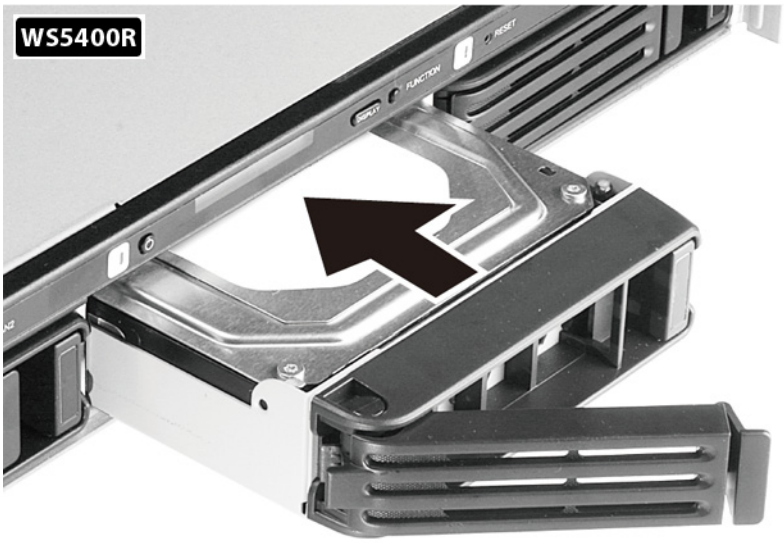
8 Push the unlock button of the failed hard drive and swing the lock mechanism out.



9 Pull out the hard drive cartridge and remove it from the TeraStation.



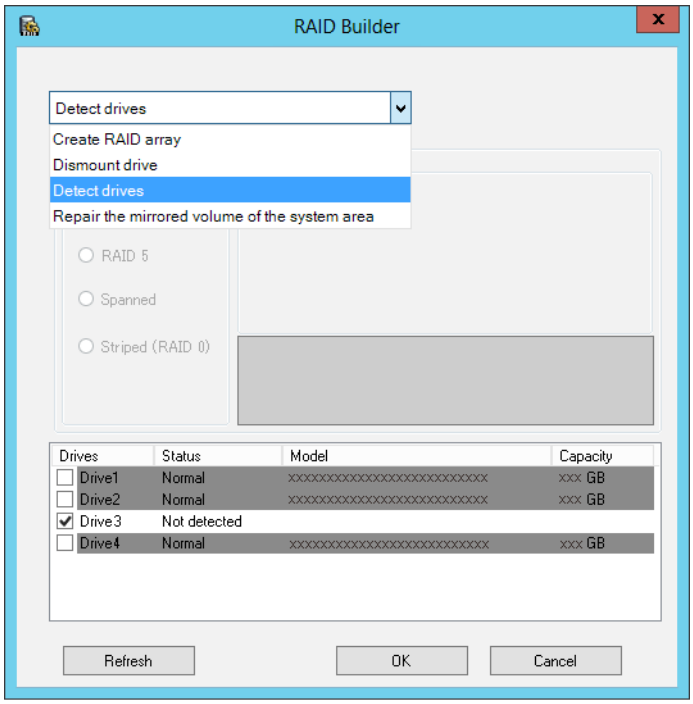
10 Insert the new hard drive (sold separately) into the empty slot. Slide the drive in with the locking mechanism open.



11 Swing the lock back down until it clicks into place.

12 Replace the front cover.
If the hard drive was replaced while the TeraStation power was turned off, press the power button on the TeraStation to turn on the power and start RAID Builder by performing steps 1 to 4 on the front page.

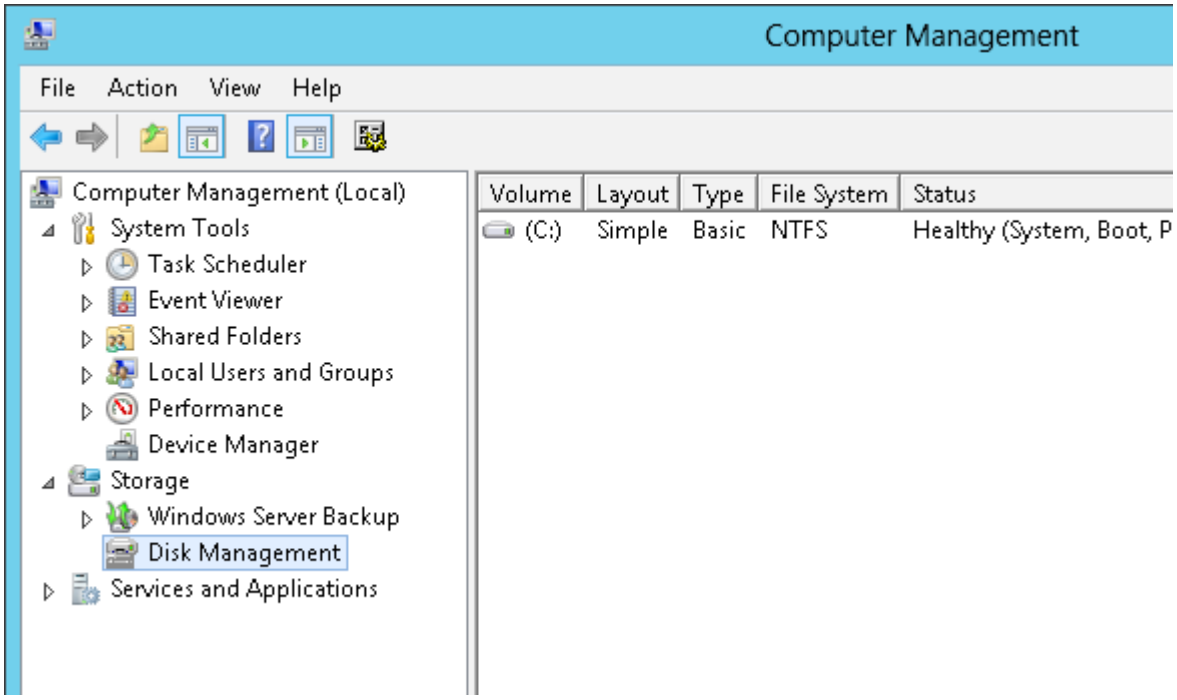
13 Select *Detect drives*, select the new drive, and click *OK*.
Previously detected drives are grayed out.



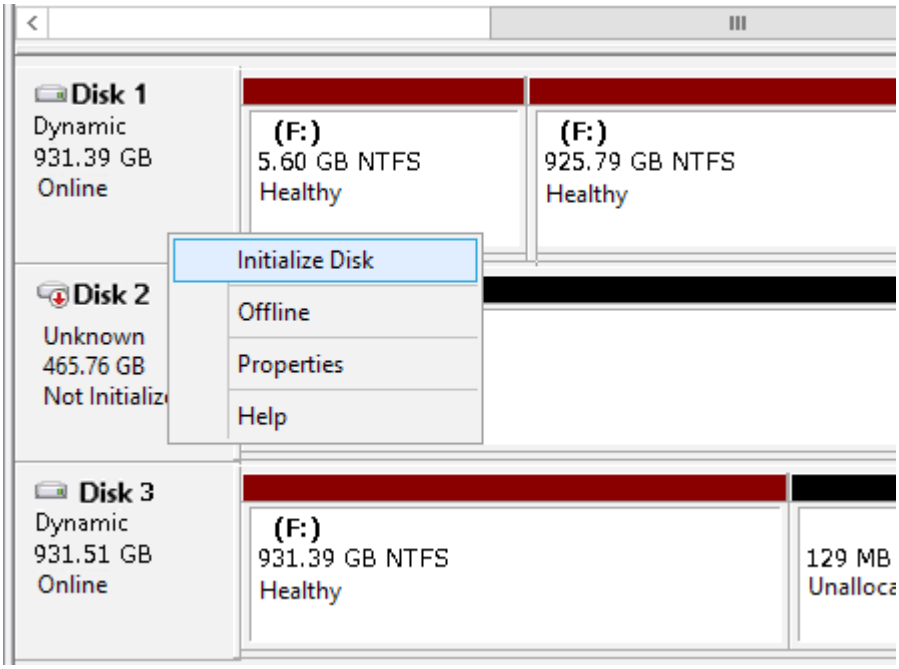
14 When "Drive detected" is displayed, click *OK*.

15 In Windows Storage Server, open *Administrative Tools*, then double-click *Computer Management*.

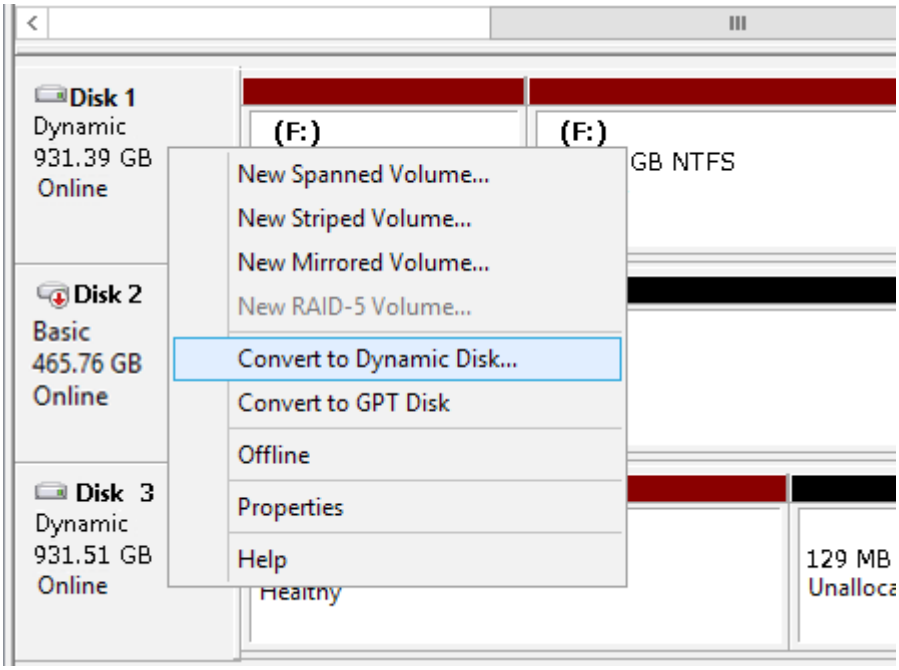
16 Click *Disk Management*.



17 Right-click the new drive, then select *Initialize Disk*.



18 Right-click the initialized hard drive, then select *Convert to Dynamic Disk*.
A RAID array cannot be built unless the hard drive is converted to a dynamic disk.



19 Select the step depending on your purpose for a created volume.

To create a new volume:

(a) Right-click the new dynamic disk and select *New Volume*.

(b) Follow the instructions on the screen to create a new volume.

To restore a RAID 5 volume (RAID resynchronization):

(a) Right-click the volume labeled "Failed Redundancy" and click *Restore Volume*.

(b) When "Select the disk from the following list" is displayed, select the drive to restore, then click *OK*.

Note: Perform steps (a) and (b) for each volume that requires RAID resynchronization.

(c) Right-click the volume labeled "Missing" and select *Delete Disk*.

To restore a Mirrored volume (RAID resynchronization):
(a) Right-click the volume labeled "Failed Redundancy" and click *Remove Mirror*.
(b) When "Remove Mirror" is displayed, select the drive with its status missing and click *OK*.

Note: Perform steps (a) and (b) for each volume that requires RAID resynchronization.
(c) Select the new volume where mirroring will be performed, then select *Add Mirror*.
(d) When "Add Mirror" is displayed, select the drive where mirroring will be performed with the selected volume, then click *Add Mirror*.
(e) When "Disk Management" is displayed, click *OK*.

Hard Drive Replacement in Case of Disk Failure on Drive 1 or Drive 2

1 Shut down the TeraStation.

2 WS5600D, WS5400D, WS5200D: Open the front cover with the included key.

3 Push the unlock button of the failed hard drive and swing the lock mechanism out.

4 Pull out the drive cartridge and remove it from the TeraStation.

5 Insert the new drive in the empty slot. Slide the drive in with the locking mechanism open.

6 Swing the lock back down until it clicks into place.

7 Close the front cover with the included key.
Press the power button on the TeraStation to turn it on.

Note: If drive 1 is being replaced, the red error LED will light up and "POST ERR: 00D9 Boot from HDD x" will be displayed on the LCD panel. Wait for the unit to reboot. When the reboot is finished, go on to step 8.

8 Open NAS Navigator2 by double-clicking the

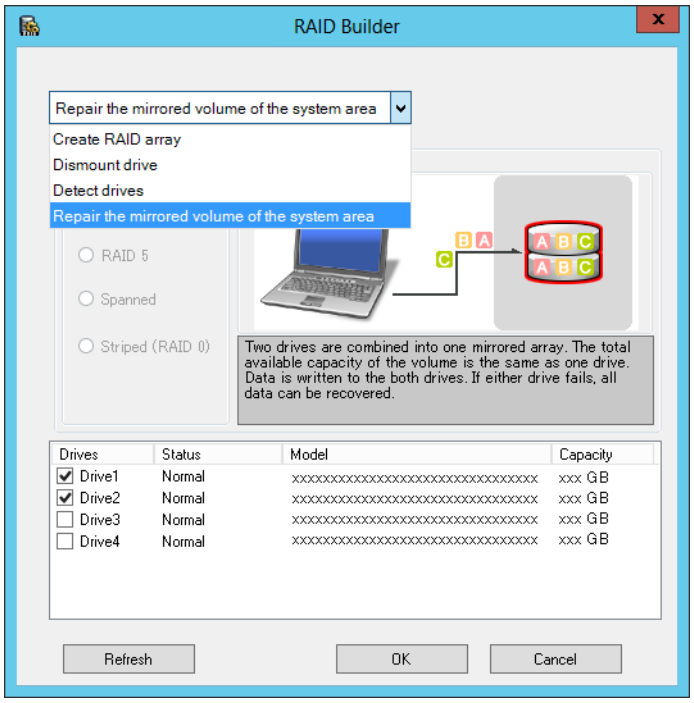
icon on the Windows desktop or in the Dock if you have a Mac.

9 Right-click on your TeraStation's icon, then click *Open Remote Desktop*.
For Mac, click the TeraStation icon while holding down the control key, then click *Open Remote Desktop*.

10 Enter the username and password, then click *OK*. Windows Storage Server opens in the remote desktop.
Note: The default username and password are "Administrator" and "password".

11 Click *Launch RAID Builder* from the Start menu of Windows Storage Server.

12 Select *Repair the mirrored volume of the system area*, check replaced hard drive, and click *OK*.


RAID Builder
Repair the mirrored volume of the system area
Create RAID array
Dismount drive
Detect drives
Repair the mirrored volume of the system area
RAID 5
Spanned
Striped (RAID 0)
Two drives are combined into one mirrored array. The total available capacity of the volume is the same as one drive. Data is written to the both drives. If either drive fails, all data can be recovered.
Drives
Status
Model
Capacity
Drive1 Normal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxx GB
Drive2 Normal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxx GB
Drive3 Normal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxx GB
Drive4 Normal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxx GB
Refresh
OK
Cancel

13 When "When Drive X will be initialized. Continue?" is displayed, click *OK*.
It will take about an hour for the mirrored volume to be repaired. You can check the progress of the repair in "Disk Management".

14 Select the step depending on your purpose for a created volume.

To create a new volume:

(a) Right-click the new dynamic disk and select *New Volume*.

(b) Follow the steps on the screen to create a new volume.

To restore a RAID 5 volume (RAID resynchronization):

(a) Right-click the volume labeled "Failed Redundancy", then click *Restore Volume*.

(b) When "Select the disk from the following list" is displayed, select the drive to restore, then click *OK*.

Note: Perform step (a) and (b) for each volume that requires RAID resynchronization.

(c) Right-click the volume labeled "Missing", then select *Delete Disk*.

To restore a mirrored volume (RAID resynchronization):

(a) Right-click the volume labeled "Failed Redundancy", then click *Remove Mirror*.

(b) When "Remove Mirror" is displayed, select the drive with its status missing and click *OK*.

Note: Perform step (a) and (b) for each volume that requires RAID resynchronization.

(c) Select the new volume for the mirror, then select *Add Mirror*.

(d) When "Add Mirror" is displayed, select the mirror drive and click *Add Mirror*.

(e) When "Disk Management" is displayed, click *OK*.

If a Mirrored Volume Failed to Restore

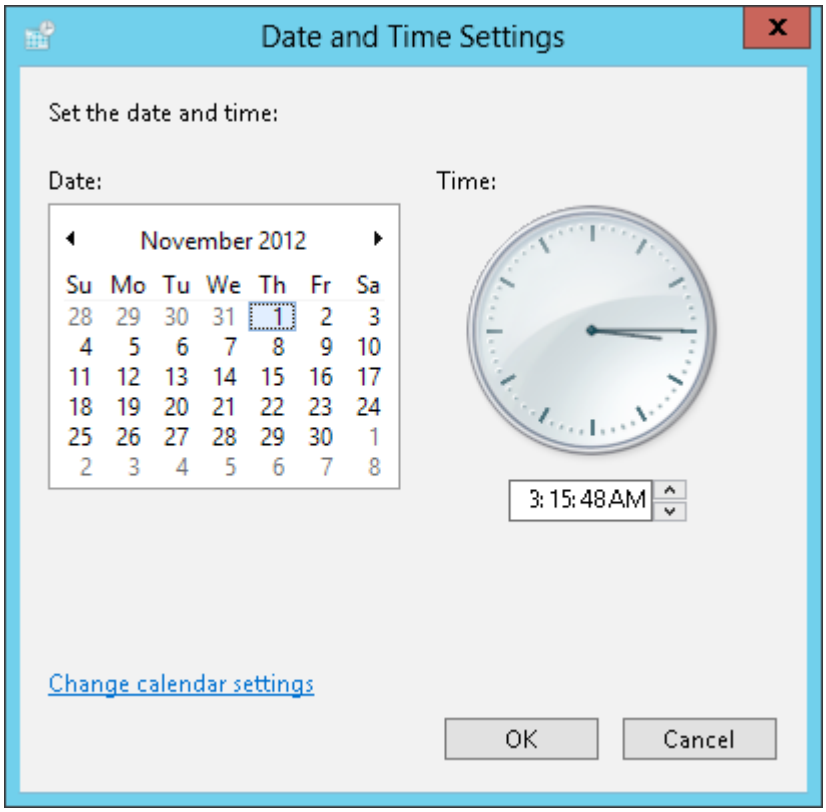
If a mirrored volume doesn't restore the first time, try the steps above a second time. If the mirrored volume still cannot be restored, contact Buffalo technical support for assistance.

Chapter 6 Settings

Date and Time

1 Click the time in the system tray of Windows Storage Server.

2 Click *Change date and time settings - Change date and time*, select the current date and time, and click *OK*.


Date and Time Settings
Set the date and time:
Date:
Time:
November 2012
Su Mo Tu We Th Fr Sa
28 29 30 31 1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 1
2 3 4 5 6 7 8
3:15:48 AM
Change calendar settings
OK
Cancel

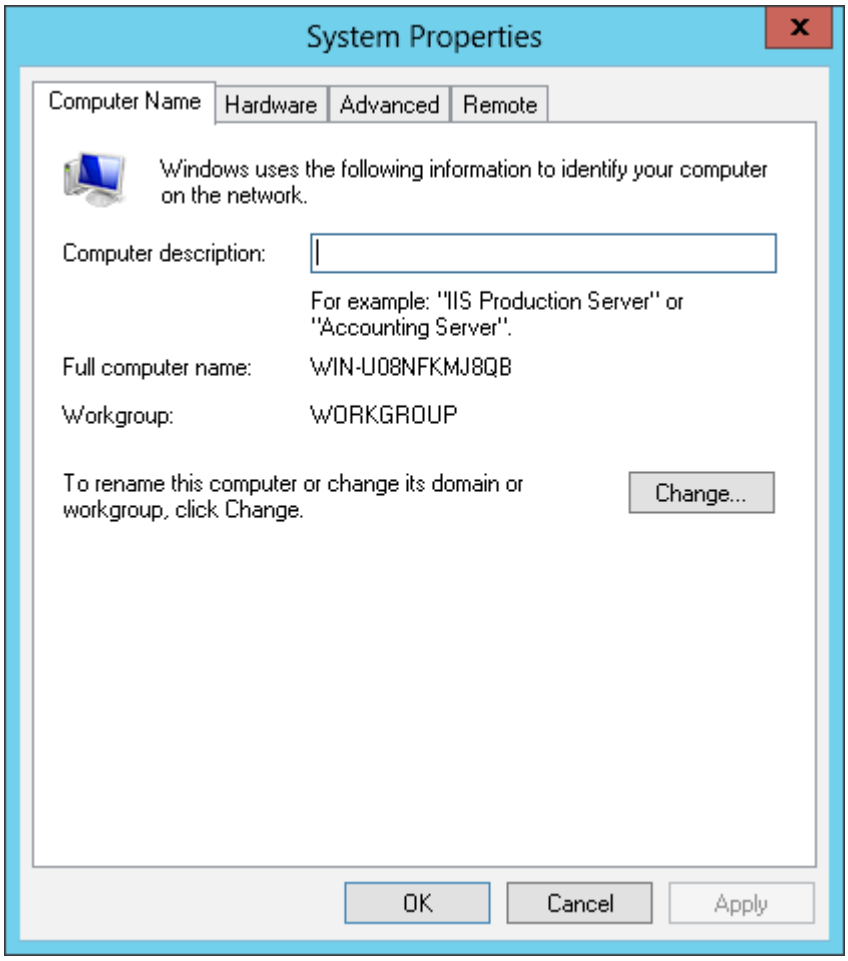
Note: In the *Internet Time* tab, click *Change settings*, then select *Synchronize with an Internet time server*. The date and time can be obtained automatically.

Server Name, Workgroups, and Domains

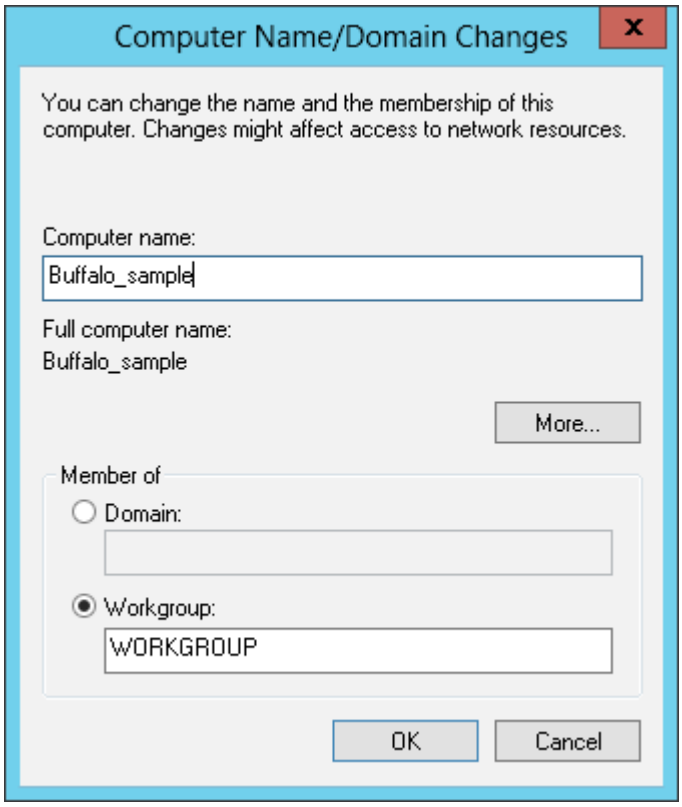
1 In Windows Storage Server, right-click *Computer* and choose *Properties*.

2 Click *Change settings* under *Computer name, domain, and workgroup settings*.

3 In the *Computer Name* tab, click *Change*.



4 Enter the computer name, choose domain or workgroup, and click *OK*.



Note: The computer name should have 16 characters or less. If more than 16 characters are entered, all characters from the 17th character on are ignored.

Changing the Password

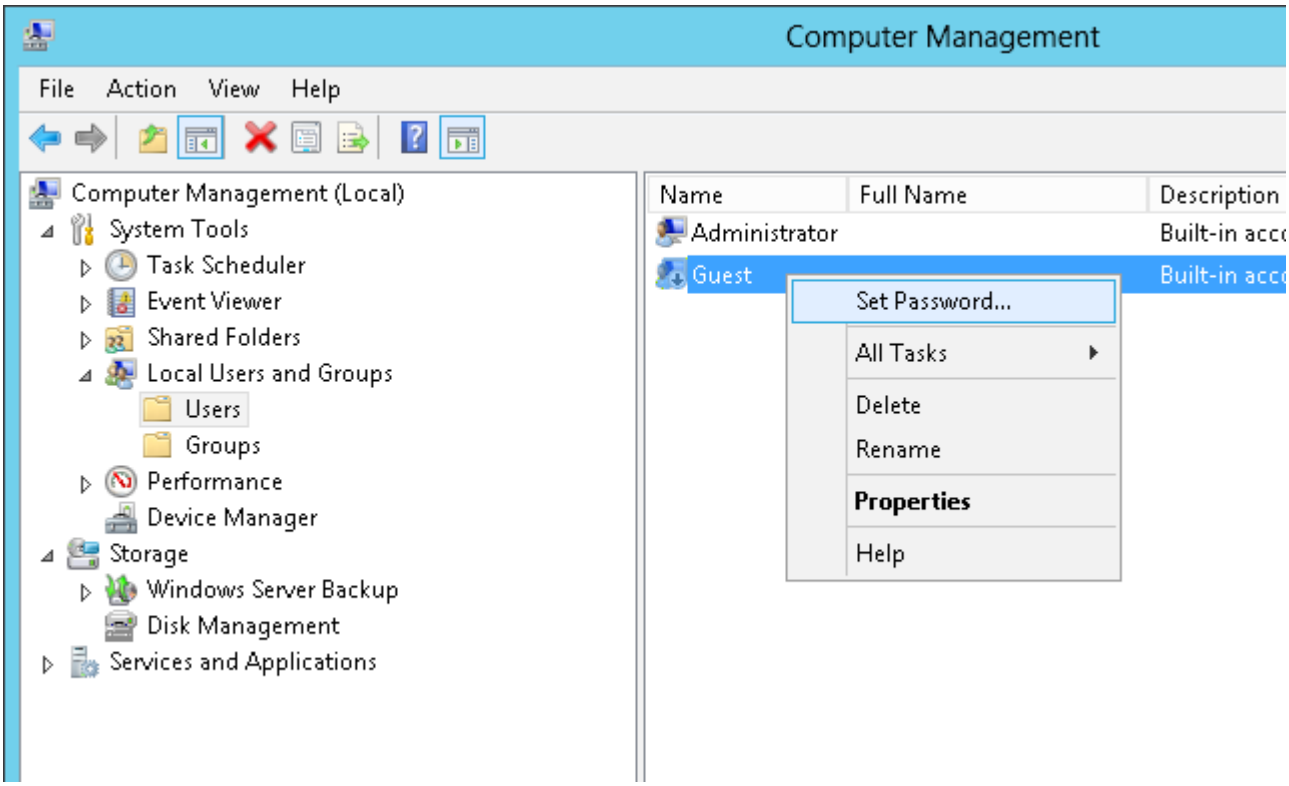
The default password for the TeraStation's administrator account is "password". This is public knowledge, so for security, you should change it immediately. Follow the procedure below to change the password.

Changing the password for the administrator account

1. In Windows Storage Server, navigate to *Control Panel - User Accounts - Manage another account*.
2. Select a user, then click *Change password*.
3. Enter the current password ("password") and a new password (twice).
4. Click *Change password*.

Changing the password for other accounts

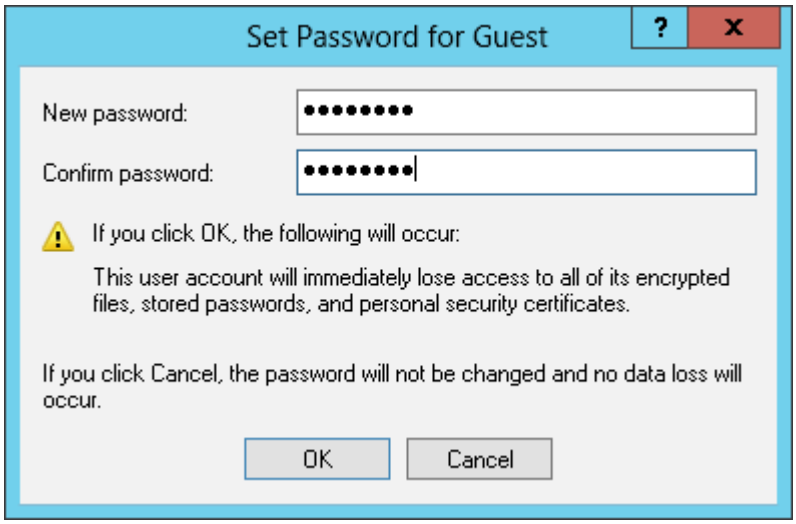
1. In Windows Storage Server, open *Administrative Tools*, then double-click *Computer Management*.
2. Click *Local Users and Groups*, then double-click *Users*.
3. Right-click the user whose password will be changed, then click *Set Password*.



4 Click *Proceed*.

Set Password for Guest
Resetting this password might cause irreversible loss of information for this user account. For security reasons, Windows protects certain information by making it impossible to access if the user's password is reset.
This data loss will occur the next time the user logs off.
You should use this command only if a user has forgotten his or her password and does not have a password reset disk. If this user has created a password reset disk, then he or she should use that disk to set the password.
If the user knows the password and wants to change it, he or she should log in, then press CTRL+ALT+DELETE and click Change Password.
For additional information, click Help.
Proceed
Cancel
Help

5 Enter a new password (twice).

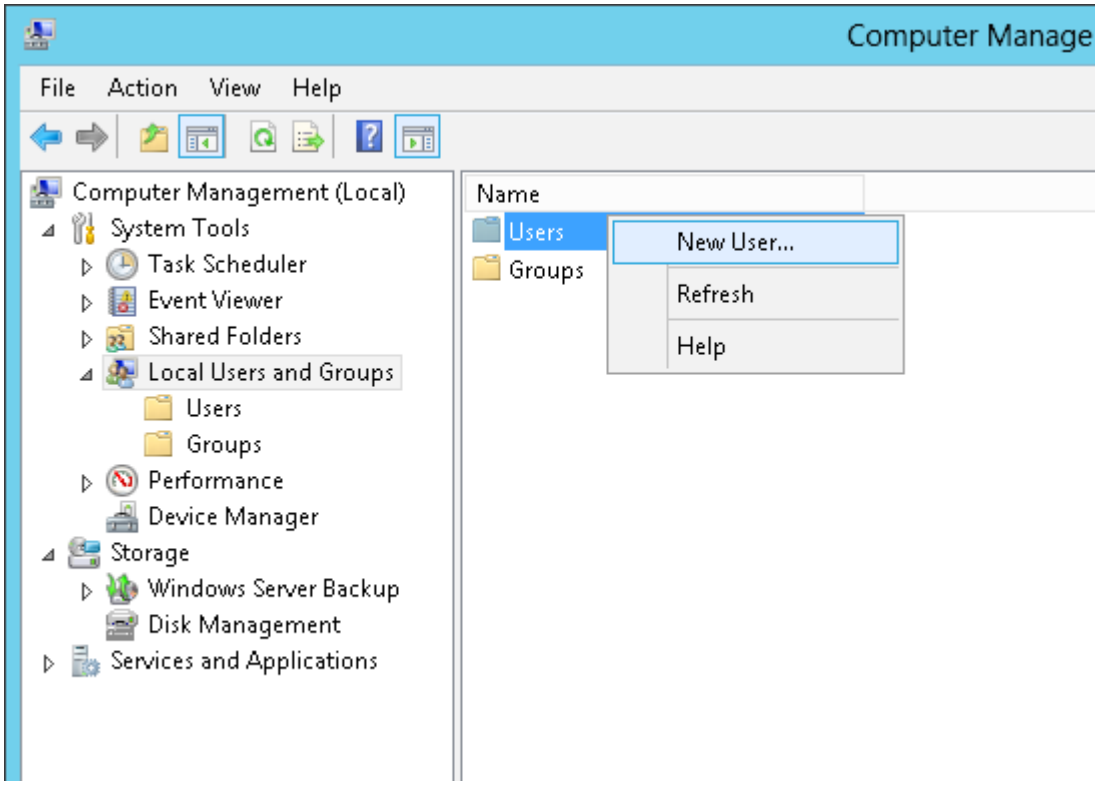

Set Password for Guest
New password:
Confirm password:
If you click OK, the following will occur:
This user account will immediately lose access to all of its encrypted files, stored passwords, and personal security certificates.
If you click Cancel, the password will not be changed and no data loss will occur.
OK
Cancel

Adding a User

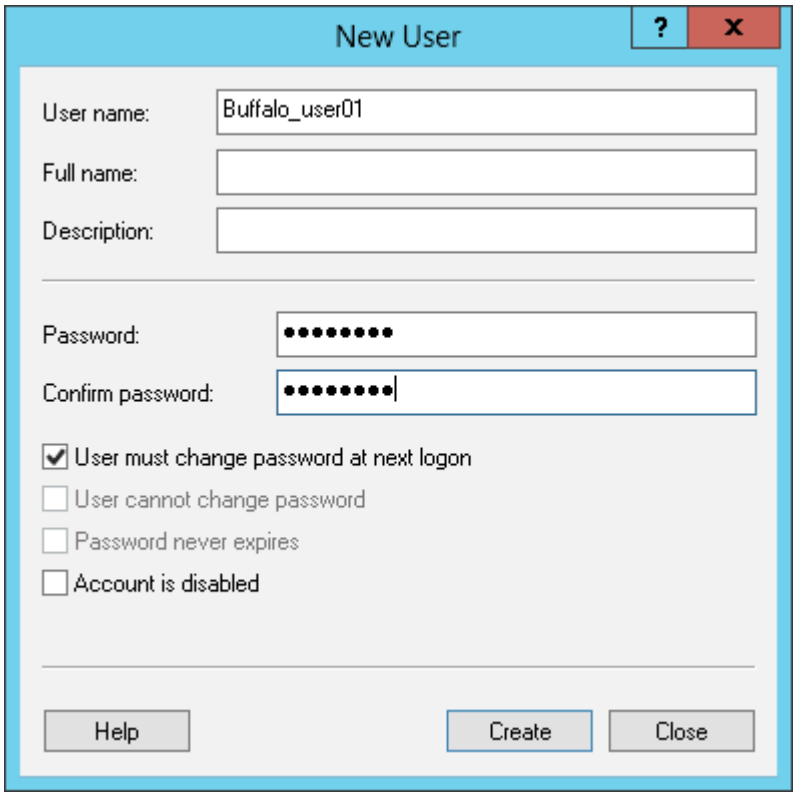
1 In Windows Storage Server, open *Administrative Tools*, then double-click *Computer Management*.

2 Click *Local Users and Groups*.

3 Right-click *Users*, then click *New User*.



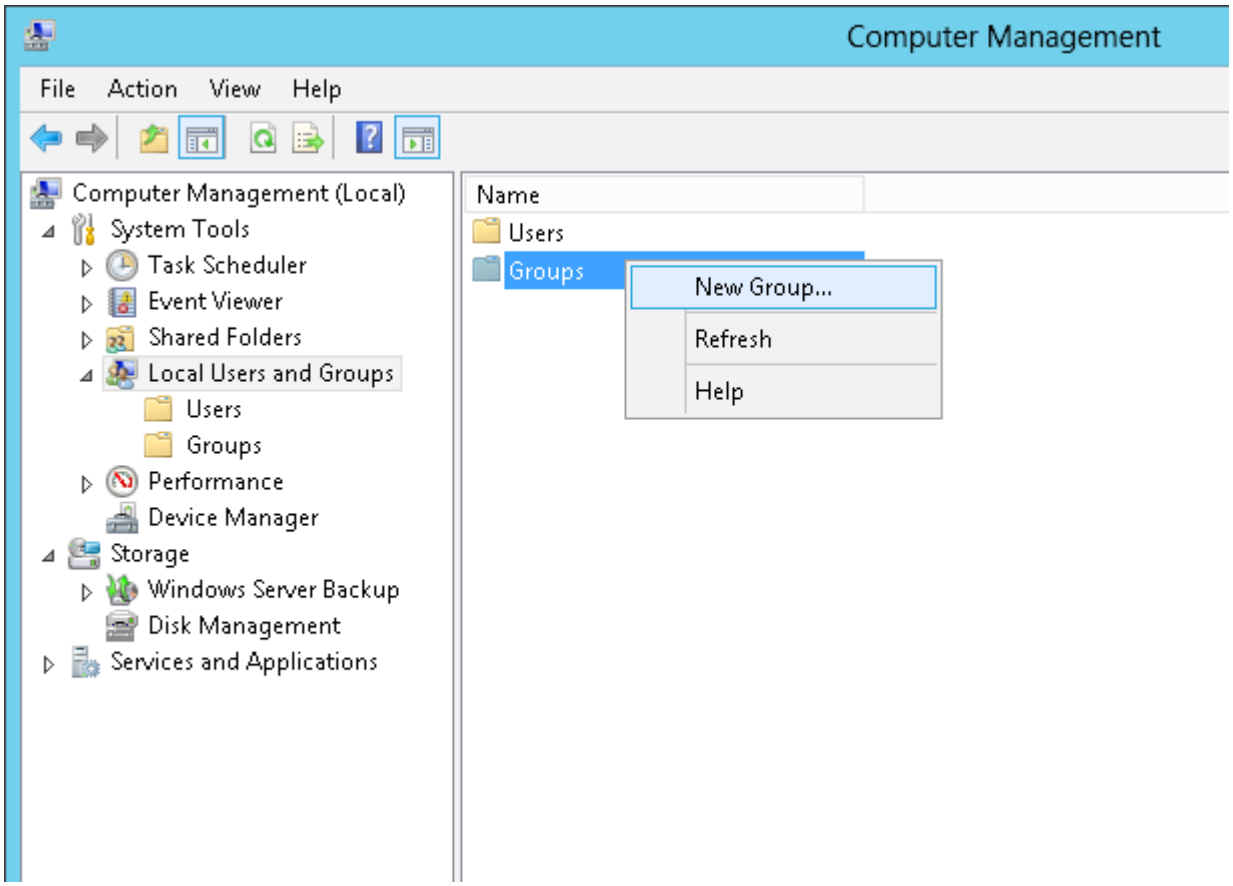
4 Enter the desired settings, then click *Create* .



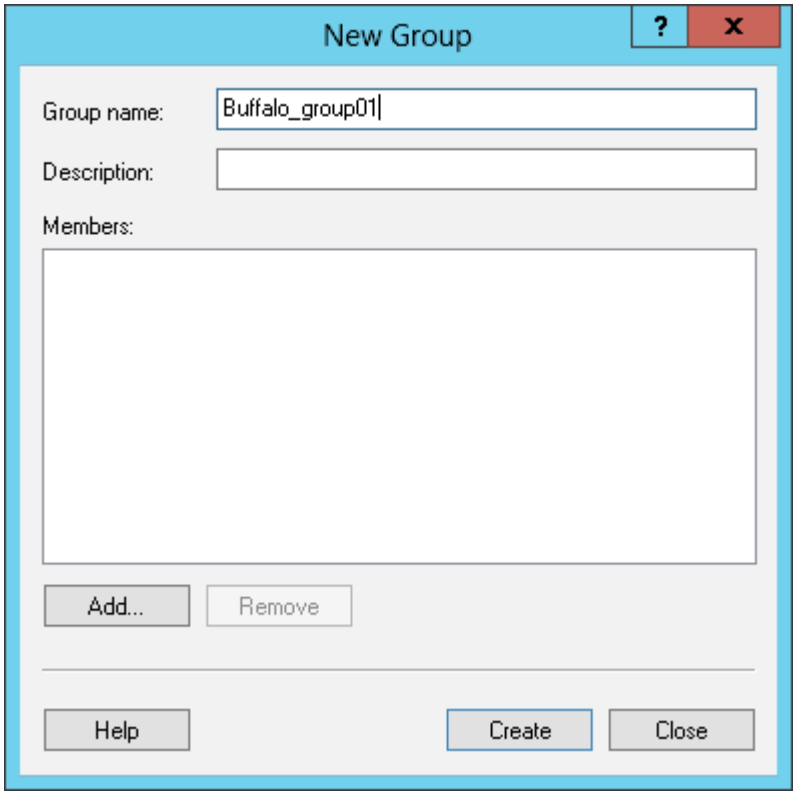
Note: Accounts not belonging to the Administrators group cannot be connected by the remote desktop.

Adding a Group

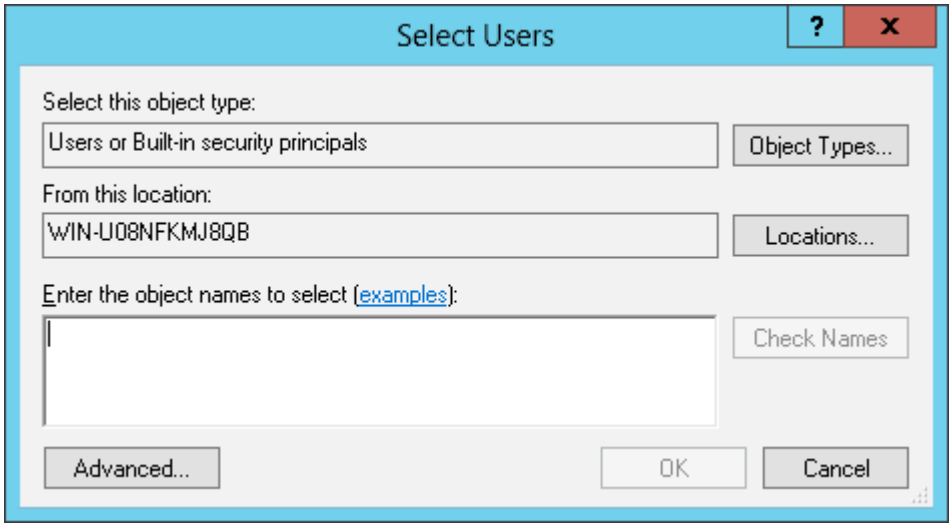
1. In Windows Storage Server, open *Administrative Tools*, then double-click *Computer Management*.
2. Click *Local Users and Groups*.
3. Right-click *Groups* and choose *New Group*.



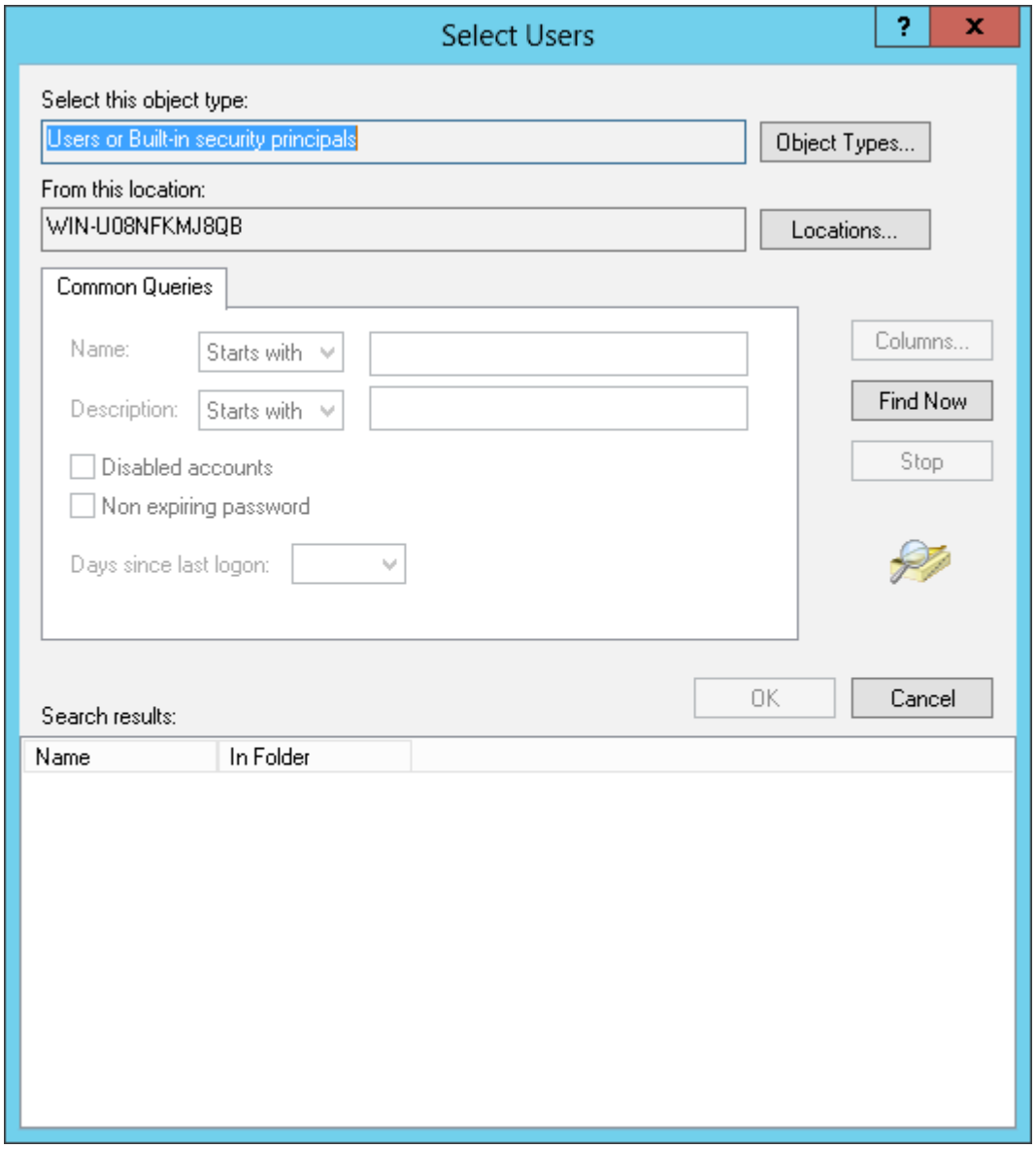
4 Enter the desired settings, then click *Create*.



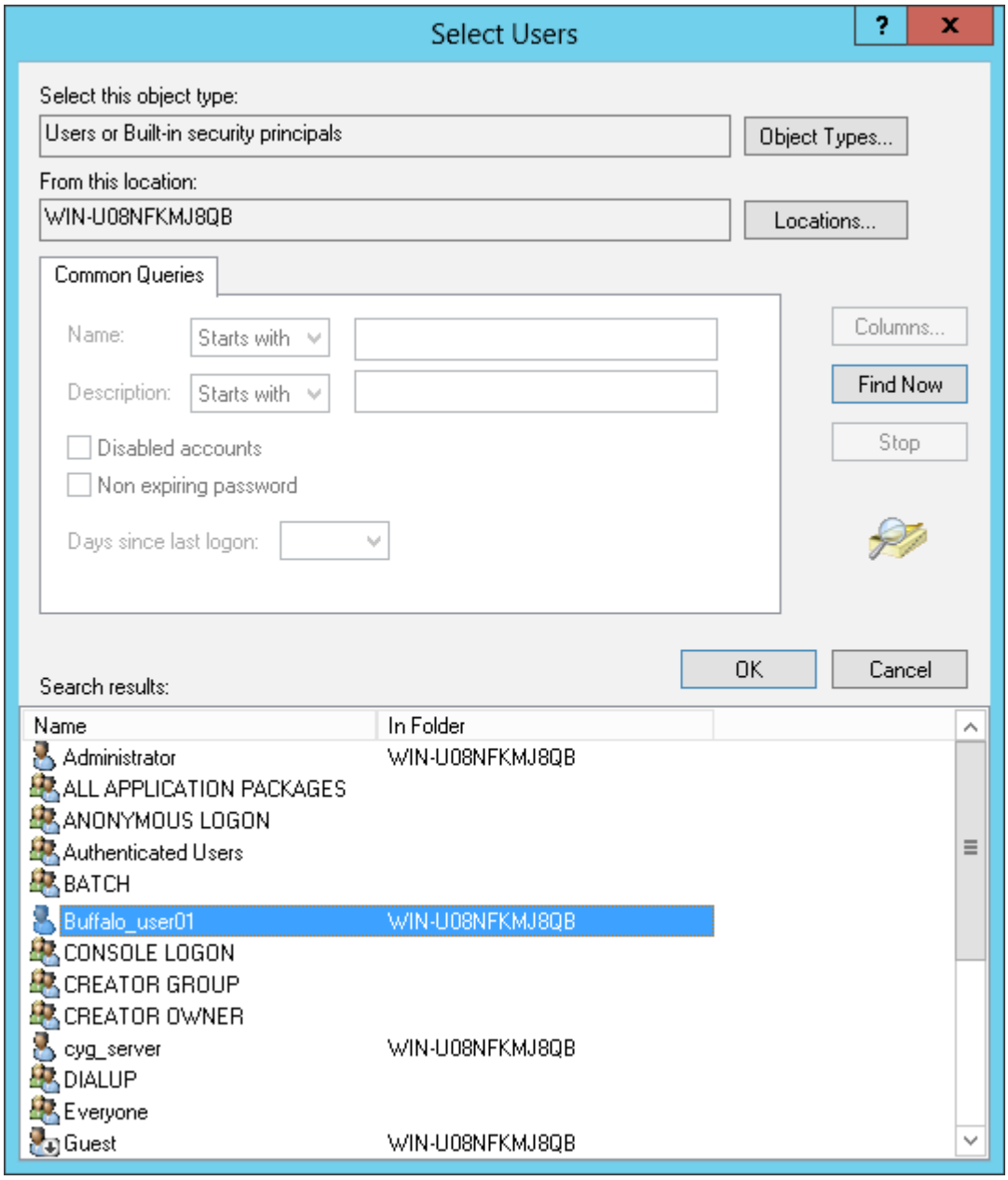
5 Click *Advanced*.



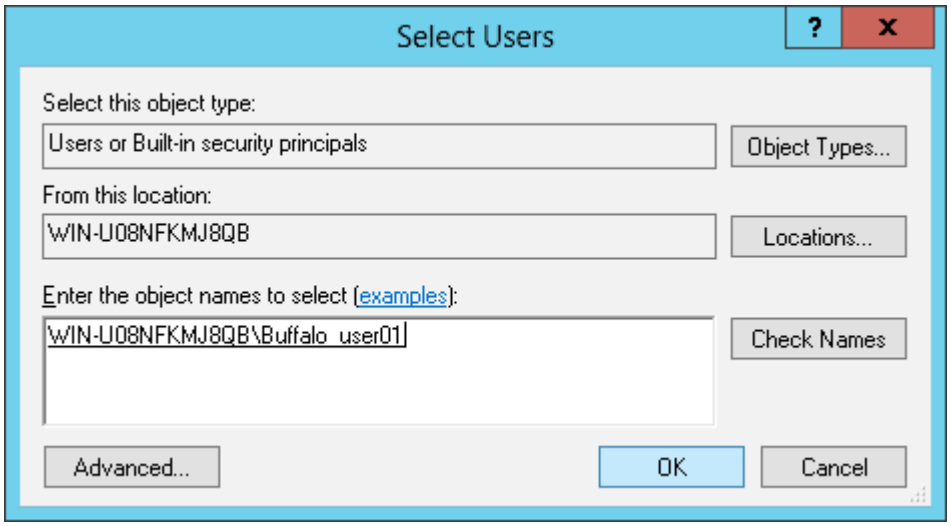
6 Click *Find Now*.



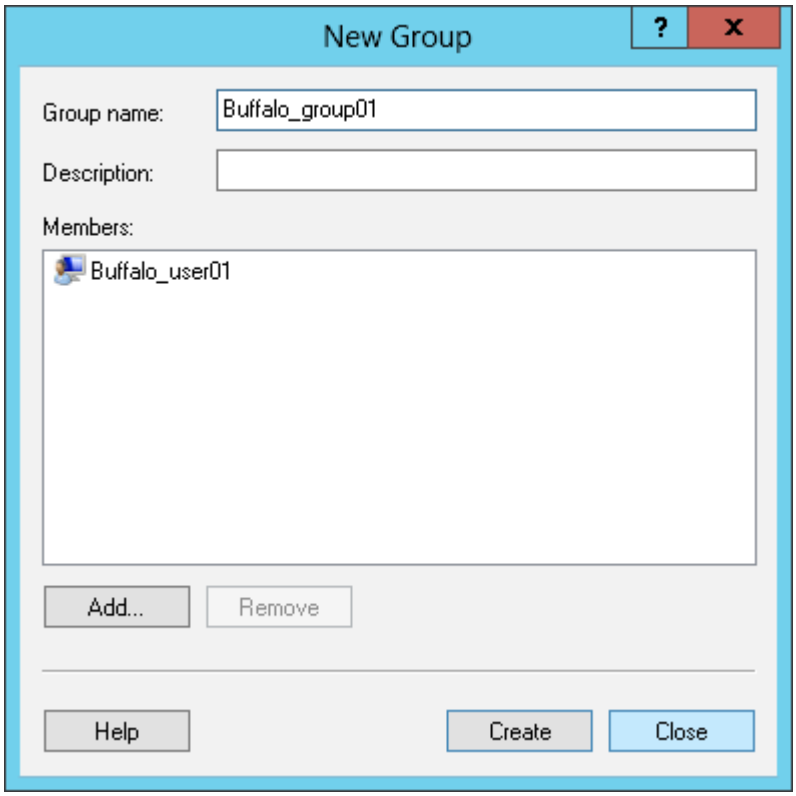
7 Select the users to be registered to the group, then click *OK*.


Select Users
Select this object type:
Users or Built-in security principals
Object Types...
From this location:
WIN-U08NFKMJ8QB
Locations...
Common Queries
Name:
Starts with
Description:
Starts with
Disabled accounts
Non expiring password
Days since last logon:
Columns...
Find Now
Stop
OK
Cancel
Search results:
Name
In Folder
Administrator
WIN-U08NFKMJ8QB
ALL APPLICATION PACKAGES
ANONYMOUS LOGON
Authenticated Users
BATCH
Buffalo_user01
WIN-U08NFKMJ8QB
CONSOLE LOGON
CREATOR GROUP
CREATOR OWNER
cyg_server
WIN-U08NFKMJ8QB
DIALUP
Everyone
Guest
WIN-U08NFKMJ8QB

8 Click *OK*.



9 Click *Close*.



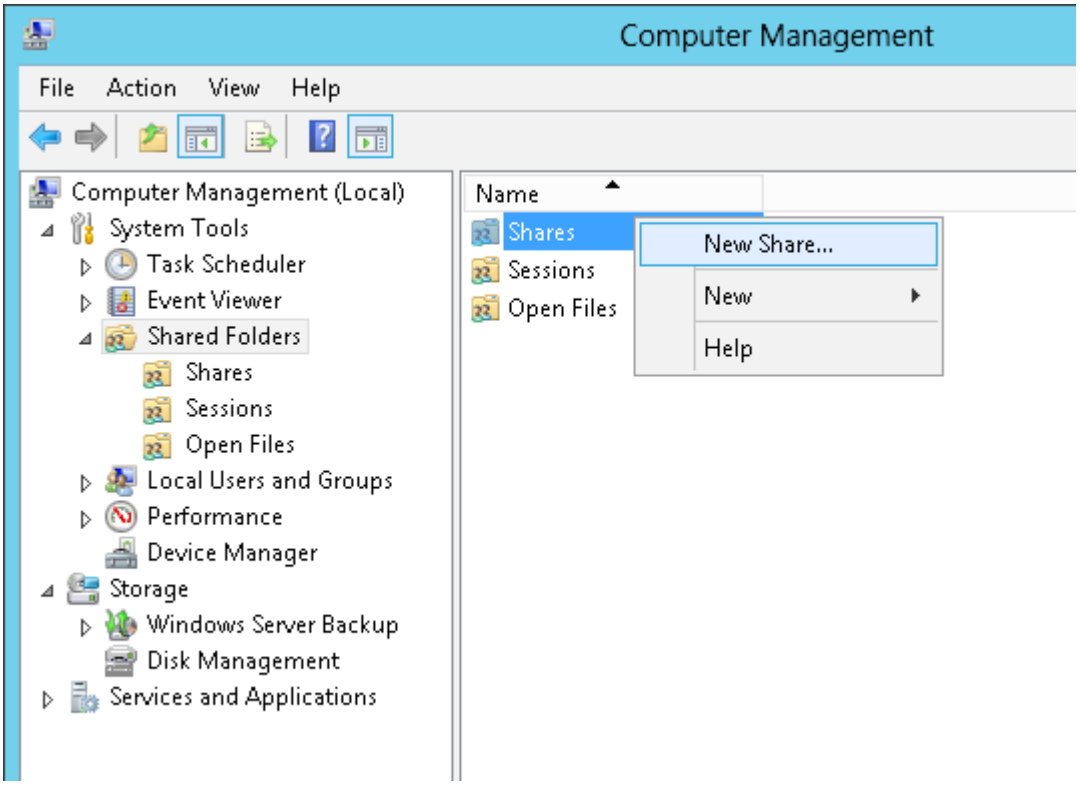
Creating a Shared Folder

No shared folders are configured by default. Before using the TeraStation, follow the procedure below to create one or more shared folders.

1 In Windows Storage Server, open *Administrative Tools*, then double-click *Computer Management*.

2 Click *Shared Folders*.

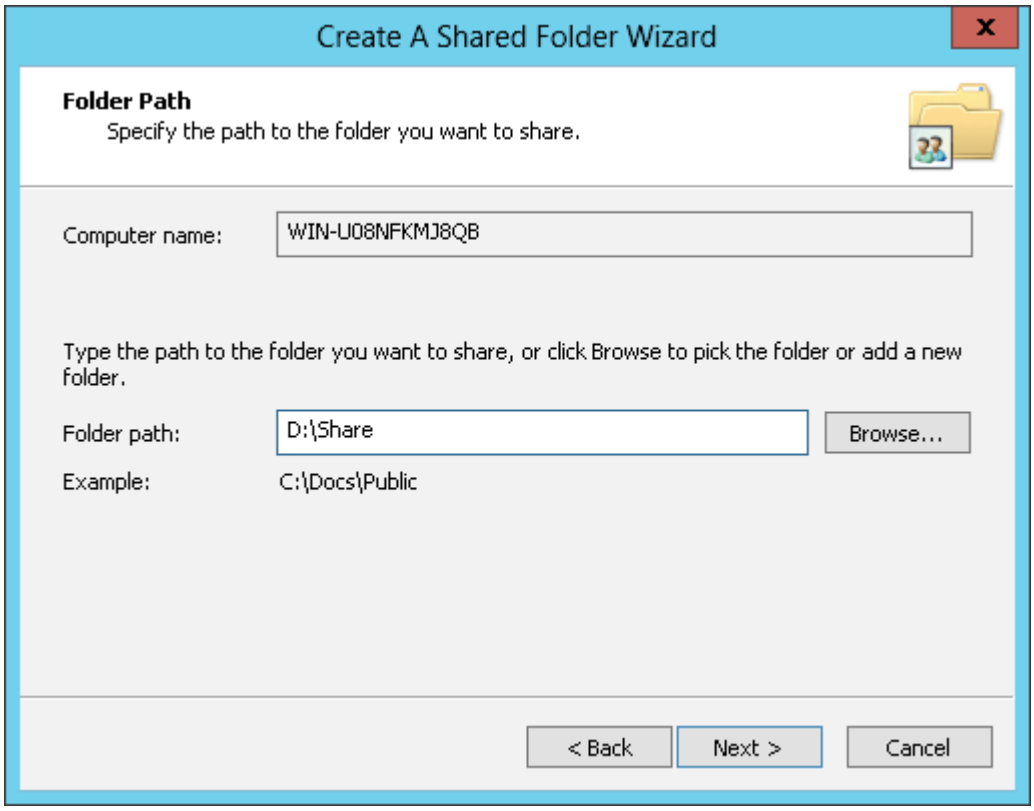
3 Right-click *Shares*, then click *New Share*.



4 Click *Next*.

Create A Shared Folder Wizard
Welcome to the Create A Shared Folder Wizard
This wizard helps you share a computer folder so that it can be accessed by people on other computers in your network or workgroup.
Windows Firewall will be set up to allow this folder to be shared with other computers. Please read how this may impact Windows Firewall and the security of your computer.
Learn more about Windows Firewall
Click Next to continue.
< Back
Next >
Cancel

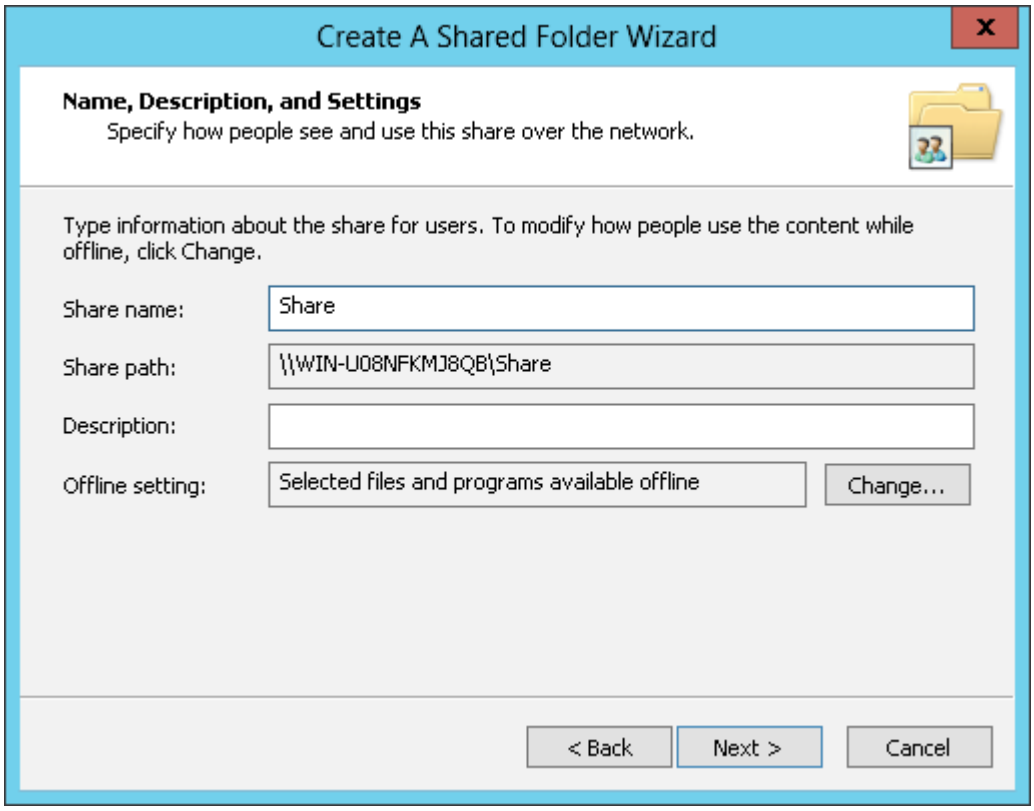
5 Enter the path of an existing folder or a new folder, then click *Next*.


Create A Shared Folder Wizard
Folder Path
Specify the path to the folder you want to share.
Computer name:
WIN-U08NFKMJ8QB
Type the path to the folder you want to share, or click Browse to pick the folder or add a new folder.
Folder path:
D:\Share
Browse...
Example:
C:\Docs\Public
< Back
Next >
Cancel

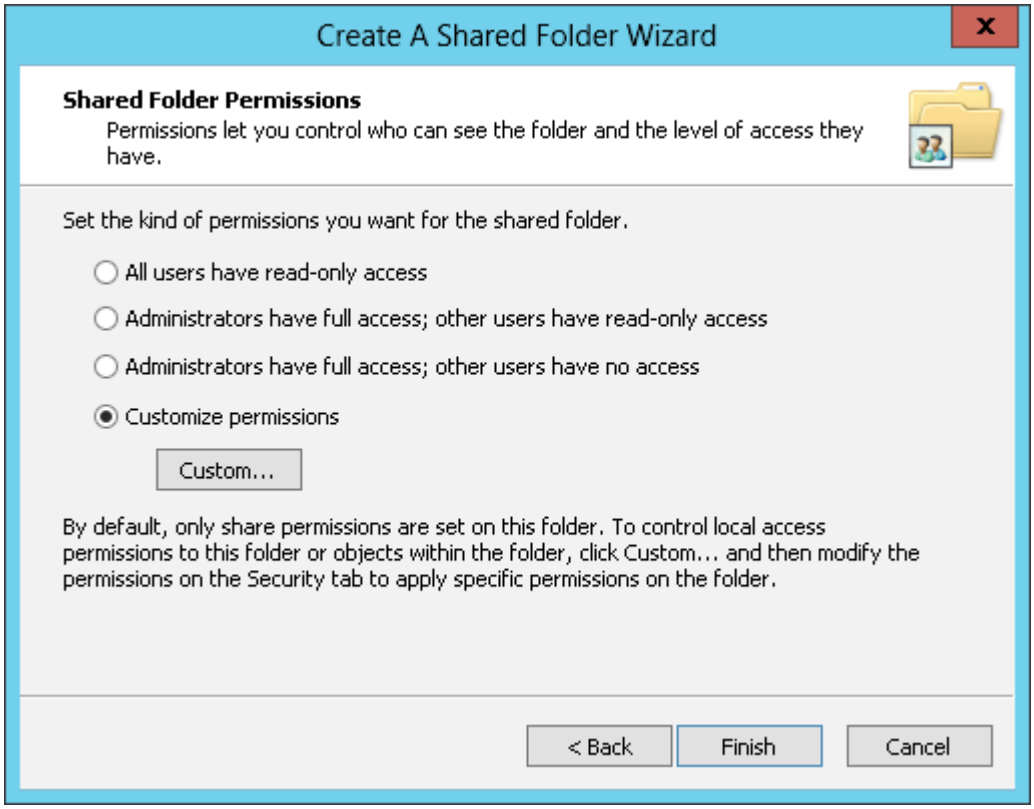
Notes:

- Enter "D:\Share" in folder path to create the shared folder for the first time.
- If the message "The system cannot find the specified path. Do you want to create it?" is displayed, click *Yes*.

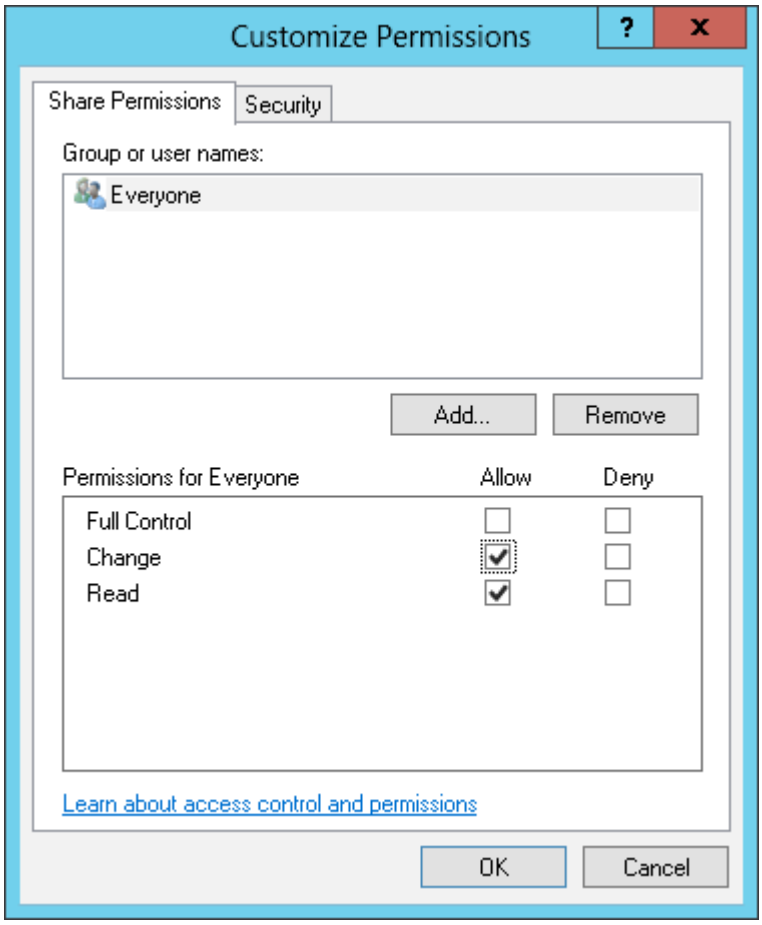
6 Enter a name for the share and a description (optional), then click *Next*.


Create A Shared Folder Wizard
Name, Description, and Settings
Specify how people see and use this share over the network.
Type information about the share for users. To modify how people use the content while offline, click Change.
Share name:
Share
Share path:
\\WIN-U08NFKMJ8QB\Share
Description:
Offline setting:
Selected files and programs available offline
Change...
< Back
Next >
Cancel

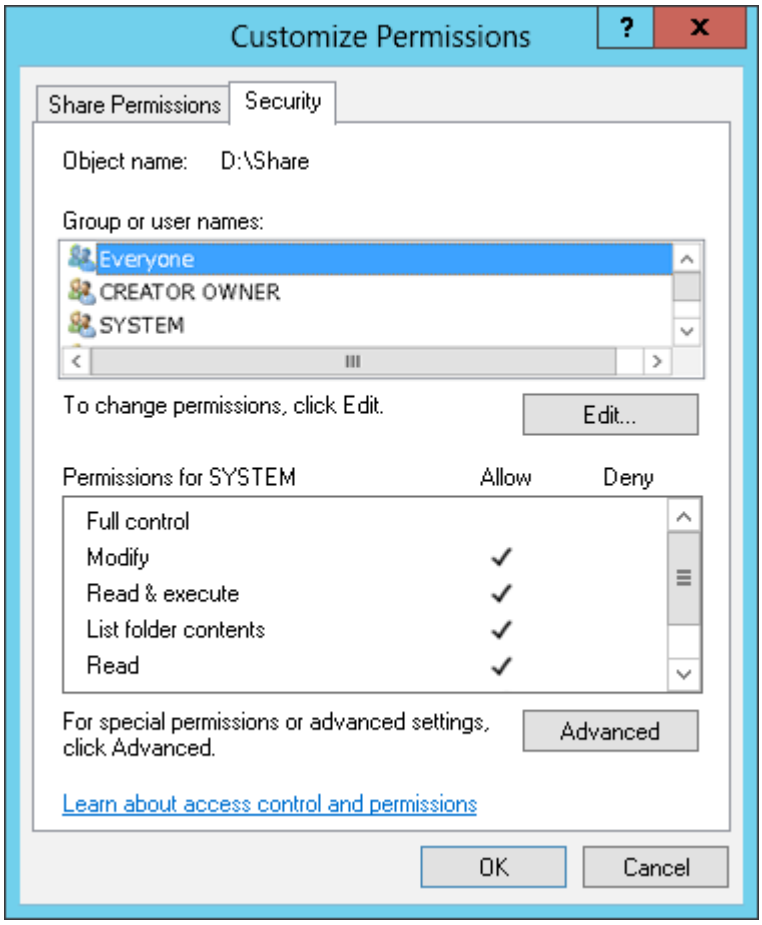
7 Check *Customize permissions*, then click *Custom*.


Create A Shared Folder Wizard
Shared Folder Permissions
Permissions let you control who can see the folder and the level of access they have.
Set the kind of permissions you want for the shared folder.
All users have read-only access
Administrators have full access; other users have read-only access
Administrators have full access; other users have no access
Customize permissions
Custom...
By default, only share permissions are set on this folder. To control local access permissions to this folder or objects within the folder, click Custom... and then modify the permissions on the Security tab to apply specific permissions on the folder.
< Back
Finish
Cancel

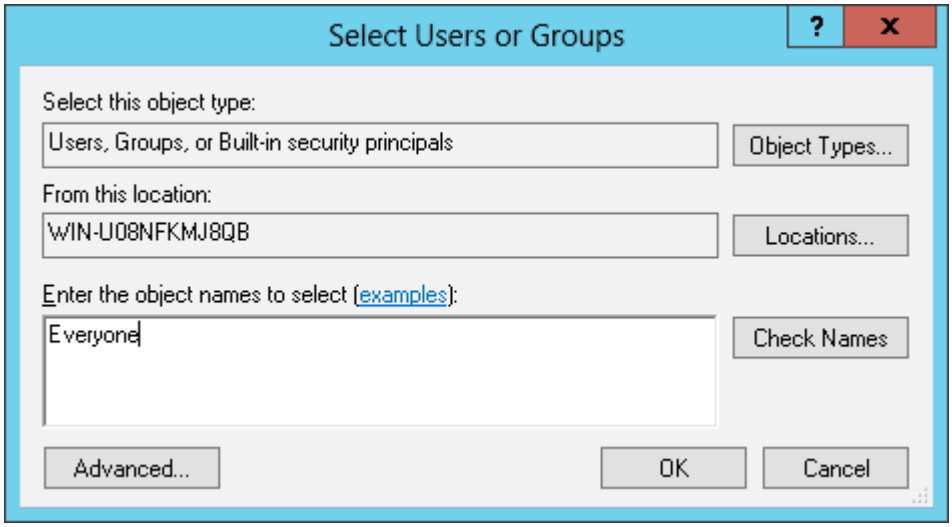
8 Choose *Everyone*, then check *Allow* for "Change".



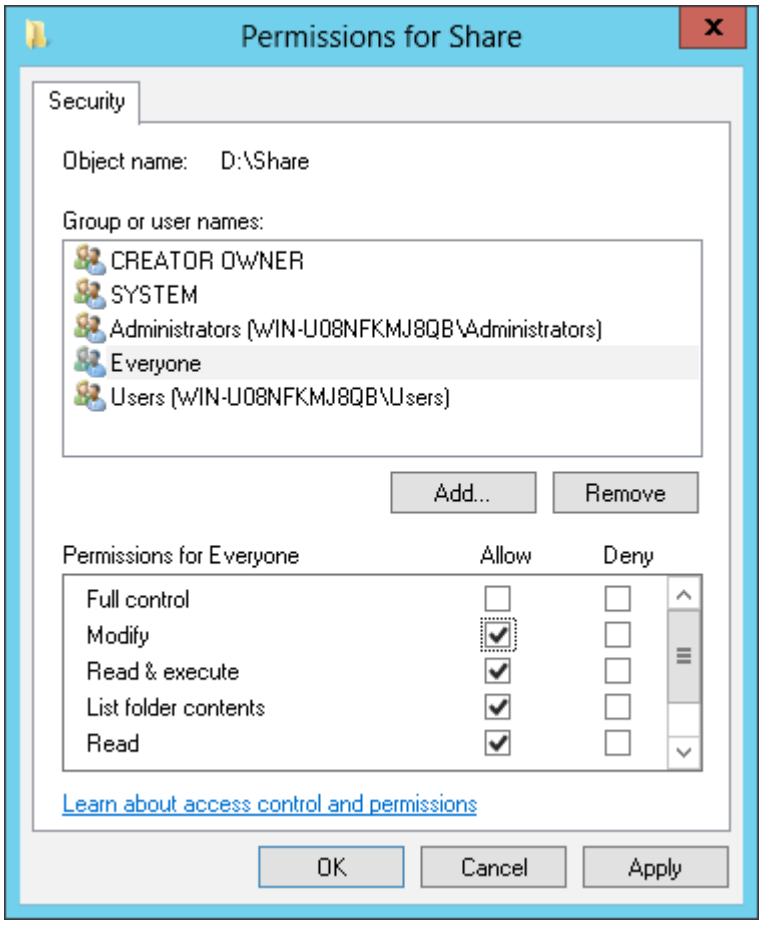
9 In the *Security* tab, click *Edit - Add*.



10 Enter "Everyone" under "Enter the object names to select", then click *OK*.



11 Choose "Everyone", then check *Allow* for *Modify*.



12 Click *OK* - *OK* - *Finish* - *Finish*.

13 Click *Local Users and Groups* in *Computer Management*.

14 Double-click *Users* - *Guest*.

15 In the *General* tab, uncheck *Account is disabled*, then click *OK*.

Notes:

Enable a guest account:

(1) In Windows Storage Server, open *Administrative Tools*, then double-click *Computer Management*.

(2) Click *Local Users and Groups*.

(3) Double-click *Users* - *Guest*.

(4) In the *General* tab, uncheck *Account is disabled*, then click *OK*.

Enable access permissions:

(5) In Windows Storage Server, open *Administrative Tools*, then double-click *Computer Management*.

(6) Click *Shared Folders*.

(7) Double-click *Shared*, then the shared folder.

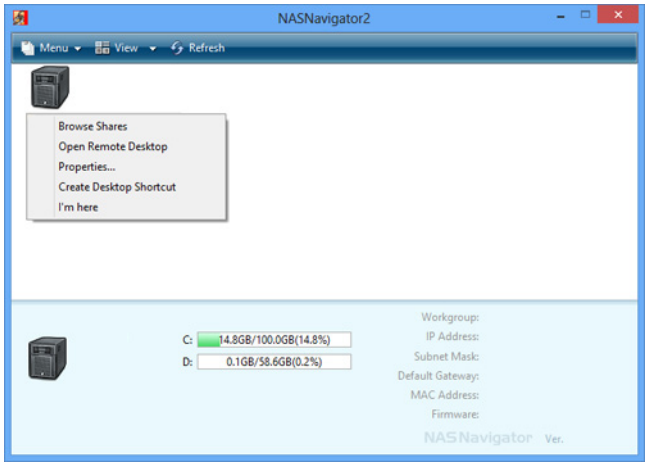
(8) In the *Security* tab, click *Edit*.

(9) From the *Local Users and Groups* list, add the users or groups that will be allowed access (the groups and users must be created beforehand). To allow access by all users, add a guest and change "Administrators Access permission" to "Full Control".

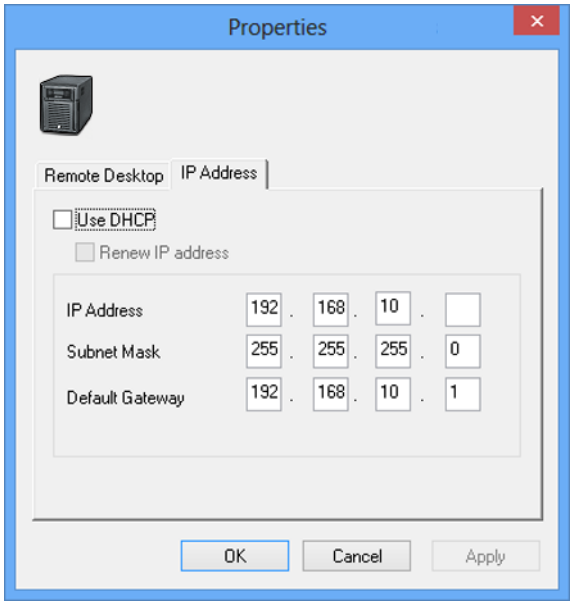
Changing the IP Address

Note: If the TeraStation is being used in a domain environment, the IP address cannot be changed by NAS Navigator2. To change the IP address, the domain environment administrator must change it at the domain server.

1 Right-click on your TeraStation's icon, then click *Properties*.
For Mac OS, click the TeraStation icon while holding down the control key, then click *Configure*.



2 Click the *IP Address* tab, enter the desired settings, and click *OK*.



Notes:

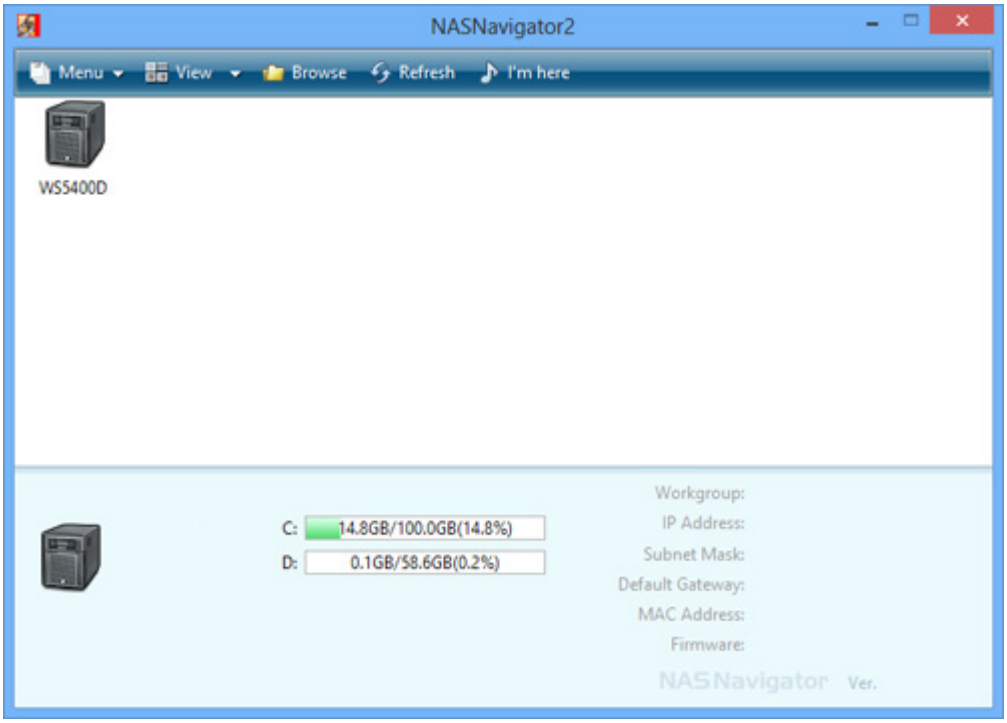
- If you don't know how to configure these settings, check "Use DHCP".
- If you are prompted to enter the administrator's password, enter the TeraStation's password (it is set to "password" by factory default).

Chapter 7 NAS Navigator2

NAS Navigator2 is a utility program that makes it easy to display Windows Storage Server, change TeraStation's IP address, or check its hard drive in remote desktop. If you installed the TeraStation with the TeraNavigator CD, NAS Navigator2 was installed automatically.

NAS Navigator2 will run in the system tray when the computer is on.

To launch NAS Navigator2, double-click the icon.



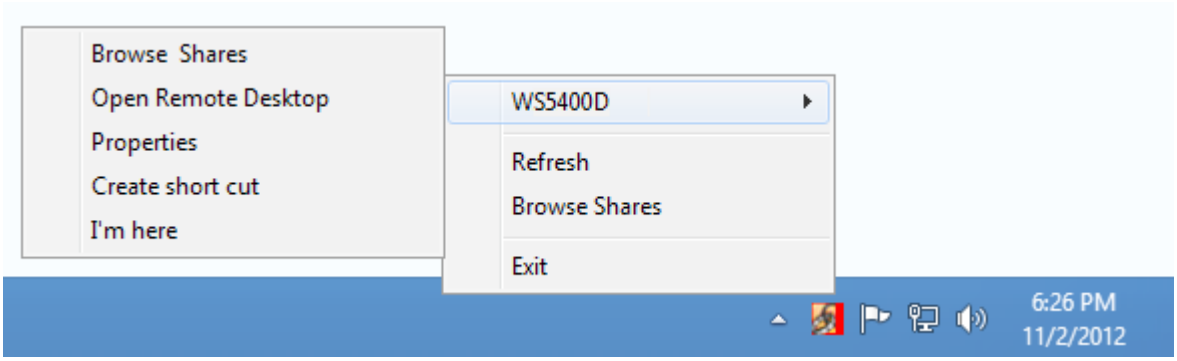
Click your TeraStation's icon to open a share on the TeraStation and display:

- Total capacity
- Capacity in use
- IP address
- Workgroup
- Subnet mask
- Default gateway
- MAC address
- Firmware version

Name		Description
Menu	Map Share*	Not available for this product (grayed out).
	Disconnect Share*	Not available for this product (grayed out).
	Map All Remote Shares to Drive Letters	Assigns all the TeraStation's shared folders as network drives. This is available only when a shared folder has been created.
	Create Desktop Shortcut*	Creates a shortcut icon to the TeraStation's shared folder "share" on the desktop.
	Launch NAS Navigator2 on Startup	Launches NAS Navigator2 in the system tray when Windows boots.
	Display Errors	If an error occurs, an error message will pop up from the NAS Navigator2 icon in the system tray.
	Properties*	Opens the selected TeraStation's properties page.
	Close	Closes NAS Navigator2.
View	View	Icons: Displays icons. Details: Displays hostname, product name, workgroup, IP address, subnet mask, and default gateway.
	Sort by	Select the sort order from following to display when multiple NAS are found: Hostname, product name, workgroup, IP address, subnet mask, and default gateway.
Browse*		Opens the TeraStation's shared folder.
Refresh		Searches for NAS devices on the network again.
I'm here*		Causes your TeraStation to beep.
Right-click your device's icon to show these options.	Browse Shares	Opens the TeraStation's shared folder.
	Open Remote Desktop	Opens Windows Storage Server in remote desktop.
	Properties	Opens the TeraStation's properties page.
	Create Desktop Shortcut	Creates a shortcut icon to the TeraStation's shared folder "share" on the desktop.
	I'm here	Causes your TeraStation to beep.

*Click on the TeraStation's icon to display these options.

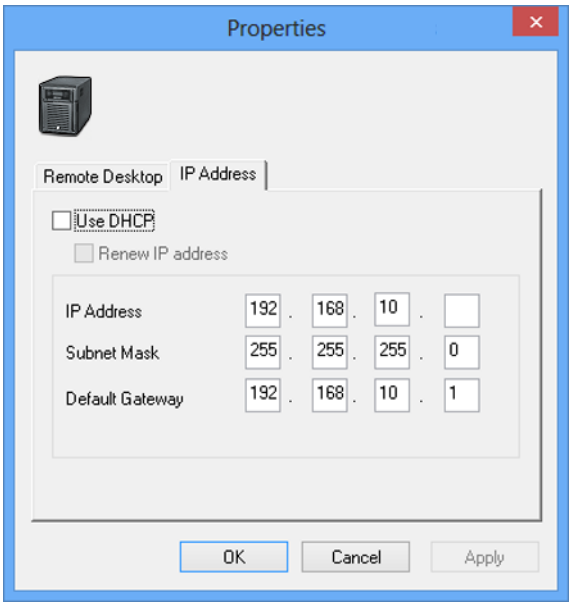
When NAS Navigator2 is minimized, right-click on the NAS Navigator2 icon in the system tray for the following options.



Name	Description

TeraStation Name	Browse Shares	Opens the TeraStation's shared folder.
	Open Remote Desktop	Opens Windows Storage Server in remote desktop.
	Properties	Opens the TeraStation's properties page.
	Create Desktop Shortcut	Creates a shortcut icon to the TeraStation's shared folder "share" on the desktop.
	I'm here	Causes your TeraStation to beep.
Refresh		Refreshes list of NAS devices.
Browse Shares		Displays NAS Navigator2 window.
Exit		Exits NAS Navigator2.

The following tasks may be performed from the TeraStation's properties page.

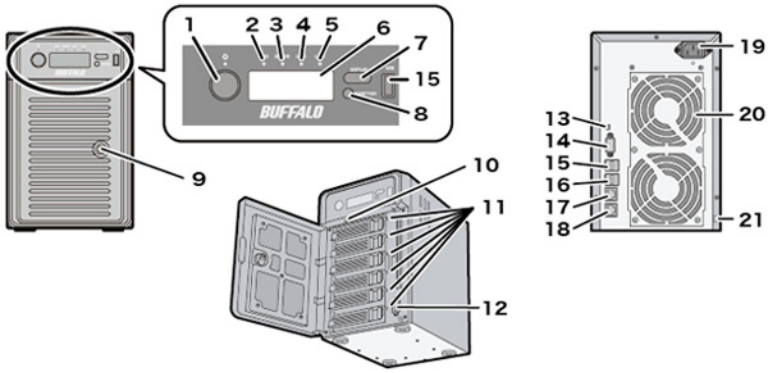


Name	Description
Remote Desktop	Click *Open Remote Desktop* to open Windows Storage Server.
IP Address	Check *Use DHCP* to assign an IP address automatically. If there is no DHCP server in the network, you cannot use this function. Check *Renew IP address* to obtain an IP address from DHCP server. You can manually enter an IP address, subnet mask, and default gateway.

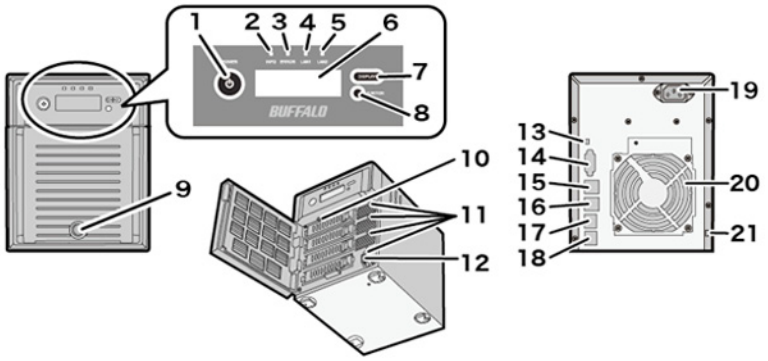
Chapter 8 Appendix

Diagrams

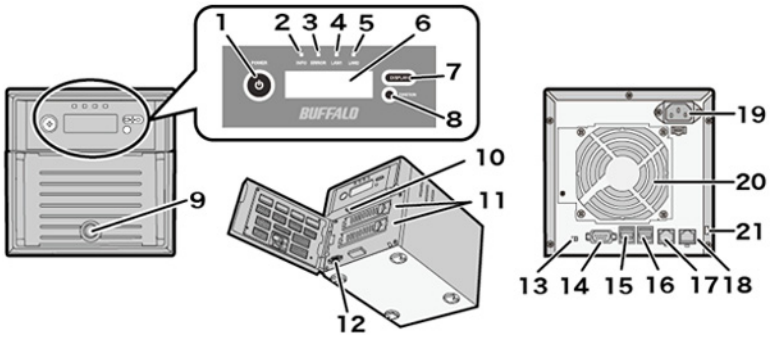
WS5600D



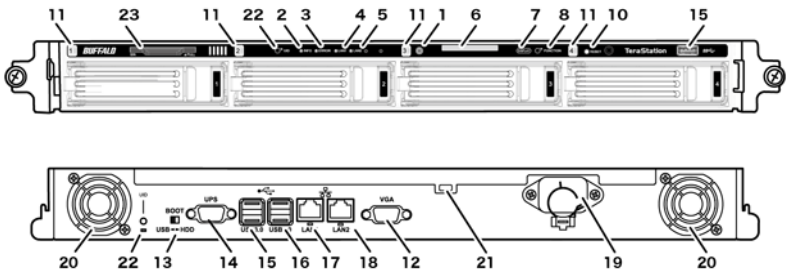
WS5400D



WS5200D



WS5400R



1 Power Button
To power on, connect the power cable and wait for 10 seconds. Then press the power button. To power off, follow the instructions in chapter 1. Do not disconnect the power cable without shutting down the TeraStation.

2 Info LED
If there is a status message, the amber info LED is lit. Check the LCD panel.

3 Error LED
The red error LED is lit when an error occurs. Check the LCD.

4 LAN1 LED
When LAN port 1 is connected to a network, it is lit green. The LED next to LAN port 1 is also lit.

5 LAN2 LED
When LAN port 2 is connected to a network, it is lit green. The LED next to LAN port 2 is also lit.

6 LCD Panel
Displays the status of the TeraStation.

7 Display Button
Switches between the display modes. This button also stops the TeraStation from beeping.

8 Function Button
Use for recovery.

9 Drive Lock
Open the front panel with the key to replace hard drives or press the reset button.

10 Reset Button
To shut down and reboot the TeraStation, hold down the reset button.

11 Status LEDs
Normally, these LEDs blink green when hard drives are accessed. If you need to remove a drive whose status LED is flashing red, either shut down the TeraStation, or dismount the drive in RAID Builder. Once the TeraStation is shut down, or the drive is dismounted, then it is safe to replace the drive. If a drive is malfunctioning, its status LED will be glowing red. Drives with the status LED lit red may be hot-swapped.

12 Factory Use Only

13 Boot Mode Switch

Leave the switch in the HDD position during normal operation. To recover settings, insert the recovery USB drive into a USB 2.0 port, move the boot switch to the USB position, and press the power button.

14 UPS Port
Connect to a UPS.

15 USB 3.0 Port
Compatible Buffalo USB 3.0 hard drives can be connected. USB hubs are not supported.

16 USB 2.0 Port
Compatible Buffalo USB hard drives, USB flash drives, digital cameras, and USB UPS connection can be connected. USB hubs are not supported.

17 LAN Port 1
Use and Ethernet cable to connect this port to your network.

18 LAN Port 2
This second Ethernet port may be used for network redundancy or backup. You may connect a second TeraStation directly to this port for backup.

19 Power Connector
Use the included power cable to connect to an UPS, surge protector, or outlet.

Note: A user license sticker is affixed to the power connector. Before removing the sticker, be sure to read the terms and conditions of the Microsoft Software License contained in the "ms-license" folder of the supplied USB device. Removing the sticker constitutes agreement to this license.

20 Fan
Do not block the fan.

21 Anti-Theft Security Slot
Use this slot to secure your TeraStation with a cable lock (not included).

22 UID Button
Press the UID button on the front or the back of the unit to cycle the blue LED on and off.

23 Serial Number
This sticker shows the TeraStation's serial number.

LCD Display

Modes

The LCD display can be cycled through different modes by pressing the display button on the front of the TeraStation.

LCD Message	Description

LINK SPEED **Note:** When an Ethernet cable is connected to LAN Port 2, "LINK SPEED 2" is displayed.	LINK SPEED No LINK	Not connected to network.
	LINK SPEED 10Mbps	Connected at 10 Mbps.
	LINK SPEED 100Mbps	Connected at 100 Mbps.
	LINK SPEED 1000Mbps	Connected at 1000 Mbps full duplex.
Disk Space Used	HDD USED 	Bar graphs are shown to indicate the used space for the C, D, E, and F internal drives of the TeraStation. When a hard drive is full, it is indicated by "^".
Hostname/IP Address	WS5000xxx 192.168.11.150	Displays the hostname and IP address.
Calendar/Clock	DATE TIME 2012/1/1 11:11	Displays the date and time set in the TeraStation.
Installed OS	Windows Storage Server 2012	Displays the OS installed on the TeraStation.
IP Address 2	NETWORK2 192.168.11.151	Displays the IP address of LAN port 2 when an Ethernet cable is connected to LAN port 2.

Errors and Status

LCD Message	Description	Corrective Action
SYSTEM Error E11 Fan Failure	An error occurred in the fan speed.	Check that no foreign objects or dust are clogging the fan. If any foreign objects or dust are found, use a pair of tweezers, air duster, or other tool to remove them. If the error is displayed again, contact Buffalo technical support for assistance.
SYSTEM Error E12 Cooling Failure	A rise in the system temperature may have exceeded the allowable safety value.	Do not place objects in the area around the TeraStation. Also, move the TeraStation to a cool location. Make sure that the TeraStation's fan is working normally.
HDx Error E16 HDx Not Found	Unable to find hard drive X.	Hard drive X may be disconnected or may have failed. After shutting down, reinstall the hard drive.
HDx Broken E30 Replace the DISK	An error occurred, so hard drive X was removed from the RAID array.	Replace hard drive X.

SYSTEM I10 TOO HOT !	A rise in the system temperature may have exceeded the allowable safety value.	Move the TeraStation to a cool location. Do not place objects in the area around the TeraStation.
Operation I12 DEGRADE MODE	Operating in degraded mode.	-
RAID I18 ARRAYx Rebuilding	Rebuilding RAID array X. **Note:** Transfer speeds are slower during the rebuilding process.	-

Default Settings

Administrator's Name	Administrator
Password	password
Shared Folders	No shared folders are preconfigured.
DHCP Client	Normally, the TeraStation will get its IP address automatically from a DHCP server on the network. If no DHCP server is available, then an IP address will be assigned as follows: IP Address: 169.254.xxx.xxx (xxx is assigned randomly when booting the TeraStation). Subnet Mask: 255.255.0.0
Registered Group	This is not set.
Microsoft Network Group Setting	WORKGROUP
RAID Mode	Drive C: A mirrored array using drives 1 and 2 Drive D: A RAID 5 array using all drives* *WS5200D: drive D is a mirrored array using drives 1 and 2.
Local Security Policy	"Password must meet complexity requirements" is disabled by default.

For more information, click *Local Server* in "Server Manager" and check "ROLES AND FEATURES".

Specifications

Check www.buffalotech.com for information about the latest products and specifications.

Installed System	Microsoft Windows Storage Server 2012 Workgroup **Note:** The Microsoft Software License is contained in the *ms-license* folder in the supplied USB device. Be sure to read the terms and conditions of this license.

LAN Port	Interface	IEEE 802.3ab (1000BASE-T) IEEE 802.3u (100BASE-TX) IEEE 802.3 (10BASE-T)
	Transfer speed	1000 Mbps Full duplex (auto-negotiation) 100 Mbps Full duplex/Half duplex (auto-negotiation) 10 Mbps Full duplex/Half duplex (auto-negotiation)
	Number of ports	2 ports (supports Auto-MDIX)
	Connector type	RJ-45 8-pin
USB Port	WS5600D, WS5400R: USB 2.0 Port (Series A) x 2, USB 3.0 Port (Series A) x 3 WS5400D, WS5200D: USB 2.0 Port (Series A) x 2, USB 3.0 Port (Series A) x 2	
UPS Port	D-SUB 9 pin (Male) x 1 Compatible UPS are manufactured by Omron or APC.	
Internal Hard Drive	Drive C: A mirrored array using drives 1 and 2 Drive D: A RAID 5 array using all drives* *WS5200D: drive D is a mirrored array using drives 1 and 2. **Note:** If a hard drive in the TeraStation malfunctions, replace it with a Buffalo Technology OP-HDS series drive of the same capacity, available from www.buffalotech.com.	
Power Supply	AC 100-240 V, 50/60 Hz	
Power Consumption	WS5600D: max ~120 W WS5400D: max ~86 W WS5400R: max ~140 W WS5200D: max ~47 W	
Dimensions (W×H×D) / Weight	WS5600D: 170 x 260 x 230 mm; 6.7" x 10.2" x 9.1" (excluding protruding parts)/ ~ 10.5 kg (23.2 lb.) WS5400D: 170 x 215 x 230 mm; 6.7" x 8.5" x 9.1" (excluding protruding parts)/ ~ 8 kg (17.7 lb.) WS5400R: 430 x 45 x 430 mm; 16.9" x 1.7" x 16.9" (excluding protruding parts)/ ~ 9 kg (19.8 lb.) WS5200D: 170 x 170 x 230 mm; 6.7" x 6.7" x 9.1" (excluding protruding parts)/ ~ 4.5 kg (10 lb.)	
Operating Environment	Temperature: 5 - 35° C; 41 - 95° F Environment Humidity: 20 - 80% (no condensation)	
Compatibility	Windows and Mac computers with Ethernet interface. **Note:** The TeraStation requires an Ethernet connection with your computer for operation. It cannot be connected via USB.	
Supported OS	Windows 8*, Windows 7*, Windows Vista*, Windows XP, Windows 2000, Windows XP Media Center Edition (2004 or 2005), Windows Server 2012, Windows Server 2008, Windows Server 2003, Windows 2000 Server OS X 10.7, 10.6, 10.5, 10.4, 10.3.9 *32-bit and 64-bit	

Data Backup

While using the TeraStation, you may lose your important data due to sudden accidents, hard disk failure, or accidental misoperation. Back up your data regularly! For best results, back up your data to Buffalo drives like the TeraStation, LinkStation, or DriveStation series.

If you can't access your TeraStation:

Typical problems and when you are unable to search using NAS Navigator2 and when the Remote Desktop screen does not open are described below.

Cause 1. The cables are not connected correctly.

The cables are not physically connected, or there may be a contact defect. Reconnect the AC cable and Ethernet cable and restart both the computer and TeraStation.

Cause 2. Software running in the background is blocking communication.

Add an exception to your rewall software, or disable the rewall software completely. Turn off any software security suite that might include a rewall. Try searching again.

Cause 3. Wireless and wired adapters are both enabled.

Disable all adapters except for the LAN adapter connected to the TeraStation.

Cause 4. The LAN cable is defective, or the connection is unstable.

Try changing the hub port or Ethernet cable that you use to connect.

Cause 5. The LAN board, card, or adapter that you are using is defective.

Try changing the LAN board, card, or adapter.

Cause 6. The LAN board or hub transmission mode has not been set.

Change the transmission mode in the LAN board or hub to "10M semi-duplex" or "100M semi-duplex". Some LAN boards or hubs may be unable to connect to the network correctly when the transmission mode is set to "Auto Negotiation".

Cause 7. A network bridge is installed.

If the network has a network bridge that is not being used, remove it.

Cause 8. You are searching from a different network.

You cannot conduct searches beyond your local network subnet. Connect the TeraStation to the same network subnet as the computer performing the search.

Cause 9. TCP/IP is not operating correctly.

Reinstall the LAN adapter drivers.

Cause 10. "Remote Desktop Connection Client for Mac" is not installed on your Mac.

If using OS X 10.4 or later, download and install "Remote Desktop Connection Client for Mac 2" from www.microsoft.com. If using OS X 10.3.9, use version 1.0.3 instead.

When TeraStation shared folders suddenly do not open

If the TeraStation shared folder is assigned and used as a network drive, access to the TeraStation may suddenly fail if network settings such as IP addresses or groups are changed. If this happens, follow the procedure in chapter 1 to open the TeraStation's shared folder with NAS Navigator2.

If you are unable to access the shared folder or the system is unstable

This usually happens because too many software applications are running in Windows Storage Server, causing a memory shortage. Exit or uninstall some of the software running in Windows Storage Server, then restart the TeraStation.

Windows Storage Server Recovery Procedure

If Windows Storage Server no longer functions properly, perform recovery using the supplied USB device.

This recovery procedure makes your data erased. Backing up regularly is highly recommended to avoid missing your important data.

Do not connect the supplied USB device to another TeraStation. The recovery process performed by the supplied USB device is intended for this product only.

Recovery is performed by deleting the area for drive 1, setting up a new 100 GB (Basic Disk/Simple) area, and then copying the Windows Storage Server image to this area.
Notes:
If there are system areas (or mirrored locations) on hard drives other than drive 1, be sure to delete the system areas (or disable the mirrored locations) before performing the recovery procedure. If recovery is performed without deleting these areas, Windows Storage Server may not run after recovery is performed.
If Windows Storage Server fails to run, turn off the TeraStation and perform the recovery procedure again while all hard drives except for drive 1 (disk 0) are disconnected. After recovery is complete, reconnect the disconnected drives, which will appear in "Disk Management" as "Foreign". In "Disk Management", right-click *Foreign*, select *Import Foreign Disks*, then right-click this area and click *Reactivate Volume* to rebuild the RAID array.

1. Turn off the TeraStation, following the procedure in "Turning the TeraStation On and Off" in chapter 1.
2. Remove all hard drives except for drive 1, following the procedure in "Hard Drive Replacement Procedure" in chapter 5.
3. Connect the supplied USB device to the USB 2.0 port.
4. Set the Boot Mode switch to "USB", then press the power button.
   This executes the recovery process.
5. The TeraStation shuts down automatically when the recovery process is complete.
6. Remove the USB device, set the Boot Mode switch to "HDD", and press the power button.
   When the initial setup is complete, the TeraStation will reboot into Windows Storage Server.

After the recover process is completed, the TeraStation is set to the state below when used at the default settings.

- Drive 1

100 MB (EFI System partition)

100 GB (Basic Disk/Simple)

The remaining space is an unallocated area.

- Drives 2 to 4

The data on the drives cannot be viewed. They appear as a "Foreign" in "Disk Management".

Note: The data on the drives can be viewed by right-clicking the area displayed as "Foreign" in "Disk Management" and then selecting *Import Foreign Disks*.

(1) Mirror the system area by using RAID Builder (drive 1 to drive 2).

(2) Remove the area for RAID 5 in drive 3 and 4.

(3) Create a RAID 5 volume with drives 1-4 using RAID Builder.

Notes

Using an Omron UPS

The TeraStation's LCD panel will not display information correctly when an Omron UPS is first connected. This is because the LCD panel control and the Omron UPS both use COM port 2. To resolve, refer to the Omron's user manual and change its UPS communication port to a port other than COM 2, then restart the TeraStation.

Ethernet port number is not correct on the Windows Storage Server or LCD display.

Ethernet port numbers are assigned in the order of recognizing them. They might be different from printed port numbers.

Compliance Information

FCC Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE Mark Warning

CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Environmental Information

- The equipment that you have purchased required the extraction and use of natural resources for its production.
- The equipment may contain hazardous substances that could impact health and the environment.
- In order to avoid the dissemination of those substances in our environment and to diminish the load on natural resources, we encourage you to use the appropriate take-back systems.
- The take-back systems will reuse or recycle most of the materials of your end of life equipment appropriately.
- The crossed-out wheeled bin symbol invites you to use those systems.
- If you need more information on the collection, reuse and recycling systems, please contact your local or regional waste administration.

KC

기종별	사 용 자 안 내 문
A급 기기(업무용 정보통신기기)	이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

BSMI

警告使用者：

這是甲類的資訊產品, 在居住的環境中使用時, 可能會造成射頻

干擾, 在這種情況下, 使用者會被要求採取某些適當的對策。

CCC

声明:

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

设备的最高使用室内环境温度: 35° C

仅适用于海拔 2000M 以下地区安全使用。

断开装置为电源软线上的插头。插座应当装在设备的附近，而且应当便于触及到。

电池警告语

1.电池不得暴露。

2.使用型号不正确的电池可能导致爆炸。

Models

WS5200D, WS5200D0402, WS5200D0802

WS5400D, WS5400D0404, WS5400D0804, WS5400D1204

WS5400R, WS5400R0804, WS5400R1604
WS5600D, WS5600D1206, WS5600D2406